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THE IMPACT OF OBJECTIVE AND PERCEIVED RELATIVE INCOMES ON HEALTH OUTCOMES IN TURKEY: INSIGHTS FROM THE LIFE IN TRANSITION SURVEY

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Abstract

This research examines the relationship between objective and perceived relative incomes and health outcomes in Turkey, drawing data from the Life in Transition Survey (LITS) III. The analysis is stratified by gender, employment status, marital status, and educational attainment. Objective income consistently correlates positively with health, with the relationship being particularly strong for employed males. On the other hand, perceived relative income significantly influences health, especially among female subgroups and the unemployed. Disparities in health outcomes based on marital status, age, and education emerge: married males, individuals below 35, and those with below-median education display pronounced associations between objective income and health. The findings emphasize the multifaceted relationships between objective income, perceived economic status, and health, highlighting the need for tailored interventions for health across distinct demographic segments in transitional settings like Turkey.

Keywords: Turkey, Income, Health, Logit, LITS
JEL Classification: I10; I30; I15; N30

TÜRKİYE'DE NESNEL VE ALGILANAN GÖRELİ GELİRLERİN SAĞLIK SONUÇLARI ÜZERİNDEKİ ETKİSİ: LIFE IN TRANSITION ANKETİ'NDEN BULGULAR

Öz

Bu araştırma, Türkiye'deki nesnel ve algılanan göreli gelirle sağlık sonuçları arasındaki ilişkiyi incelemekte olup, veriler Life in Transition Survey (LITS) III'den alınmıştır. Analiz, cinsiyet, istihdam durumu, medeni durum ve eğitim düzeyine göre ayrıştırılmıştır. Nesnel gelir, sağlıkla sürekli olarak olumlu bir şekilde korele olup, bu ilişki özellikle çalışan erkekler için güçlüdür. Diğer yandan, algılanan göreli gelir, özellikle kadın alt grupları ve işsizler arasında sağlığı önemli ölçüde etkilemektedir. Medeni durum, yaş ve eğitim düzeyine göre sağlık sonuçlarında farklılıklar ortaya çıkmaktadır: Evli erkekler, 35 yaş altı bireyler ve medyanın altındaki eğitim düzeyine sahip olanlar arasında nesnel gelir ile sağlık arasındaki ilişkiler belirgin hale gelmektedir. Bulgular, nesnel gelir, algılanan ekonomik durum ve sağlık arasındaki çok yönlü ilişkileri vurgulamakta ve Türkiye gibi geçiş sürecindeki ülkelerde farklı demografik segmentler için özelleştirilmiş sağlık müdahalelerin gerekliliğini ortaya koymaktadır.

Anahtar Kelimeler: Türkiye, Gelir, Sağlık, Lojit, LITS
JEL Sınıflandırması: I10; I30; I15; N30

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1. INTRODUCTION

Income's influence on health has been a cornerstone in socio-economic research for decades. Self-rated health (SRH), a widely accepted metric, gauges individuals' subjective health perceptions, often derived from survey questions that solicit respondents to categorize their health from poor to excellent (Bombak, 2013). While several studies have delved into the relationship between SRH and income, clear patterns remain elusive (Douthitt et al., 1992; Banks et al., 2006; Muhammad and Priya Maurya, 2023). For instance, Carrieri (2008), using data from Italy, identified a positive correlation between income and SRH without discerning any significant socioeconomic differences between northern and southern regions. However, this study didn't holistically address both regional and individual factors. In other contexts, such as Canada and Britain, research by Humphries and van Doorslaer (2000) and Hernandez-Quevedo et al. (2004) revealed inverse relationships between SRH and income. In a contrasting finding, Jürges (2008) observed that higher-income respondents in Germany often downplayed their actual health status in SRH assessments.

The scholarly discourse on health outcomes has increasingly shifted attention towards perceived or relative income, emphasizing its significance beyond objective financial measures (Hayo and Seifert, 2003; Adler and Stewart, 2010; Bridges and Disney, 2010; Sarti and Espinola, 2018; Muhammad and Priya Maurya, 2023). Understanding economic status, shaped by individual psychosocial reactions and influenced by societal context and social hierarchy, is crucial due to its significant impact on health conditions (Kraus et al., 2009). This underscores the need to investigate the relationship between perceived economic status and its implications for subjective health outcomes (Garner et al., 1996). The interplay between perceived income and SRH remains relatively unexplored (Cheng et al., 2002; Pu et al., 2011; Bidyadhar, 2015; Reyes Fernández et al., 2016). Existing research has predominantly focused on older populations, revealing a substantial gap in the understanding of the intersections between perceived economic status and SRH across different age groups and economic contexts (Hazelrigg and Hardy, 1997; Cheng et al., 2002; Cialani and Mortazavi, 2020). A study by Cheng et al. (2002) in China and another by Bidyadhar (2015) in India, both underscored the significant impact of perceived financial health on SRH among the elderly. Likewise, findings from Costa Rica (Reyes Fernández et al., 2016) and Taiwan (Pu et al., 2011) further accentuated this relationship, emphasizing the interplay of subjective financial satisfaction and SRH, especially among the middle-aged and elderly. Furthermore, there's a noticeable absence in the literature of separate analyses for each subpopulation, such as gender, marital status, employment status, and educational attainment, to explore the nuanced impacts within each demographic. This leaves a significant avenue for more granular investigations to understand the varied influences of perceived economic status on SRH among these diverse groups.

Addressing these gaps, this paper provides a comprehensive analysis that considers these specific subpopulations, thereby offering insights into the multifaceted relationship between perceived economic status and SRH. Given these gaps and Turkey's unique socio-economic challenges, it emerges as an ideal setting for such an exploration. Experiencing rapid transformations and contending with rising living standards juxtaposed against widening economic disparities (Pamuk, 2007), Turkey embodies the challenges many transitional economies face. This research delves deeply into the country's unique socio-economic landscape, aiming to understand the intricate dynamics between perceived economic sufficiency and health. The insights gained are not only vital for Turkey but also provide a framework that can inform robust policy-making in other transitional economies undergoing similar economic and geopolitical shifts.

In the analysis utilizing the third wave of the Life in Transition Survey, it becomes evident

that both objective and perceived relative incomes significantly influence health outcomes. The positive correlation between objective income and health is stronger among males than females. Furthermore, high-income perceptions are more prominently linked with better health, especially among females. Delving further through heterogeneous effects tests, the data unravels complex patterns. Employment status, for instance, magnifies the association between objective income and health among employed males, whereas unemployed females exhibit significant ties between perceived relative income and health. Marital status and age further segment these relationships, with married males and those below the age of 35 displaying stronger ties between income and health. Educational attainment adds another layer to the narrative, emphasizing the importance of perceived relative income among those with below-median education levels. These intricate relationships underscore the multifaceted influence of both objective and perceived financial standings on health, indicating the need for interventions that recognize these nuanced disparities. However, it's essential to acknowledge the inherent limitations tied to the study. Bound by the scope of the LITS III dataset, potential constraints include the temporal nature of the data, potential regional variations not captured, and the challenges tied to self-reported health and income metrics. Given the intricate and multifaceted nature of income-health dynamics in transitional contexts, I recommend future research avenues that delve deeper, employing longitudinal and mixed-method approaches for a holistic exploration.

The structure of the paper is as follows: The "Empirical Framework" section outlines the methodology and data used. The "Results" section presents the outcomes of the econometric analysis. Subsequently, the author interprets these findings in the "Discussion" section and concludes the paper in the "Conclusions" section.

2. EMPRİCAL FRAMEWORK

2.1. Data

The research utilizes data derived from the Life in Transition Survey (LITS). LITS has questions on self-reprted health of the survey respondents. The survey witnessed three separate implementations, specifically in the years 2006, 2010, and 2016. These deployments were facilitated collaboratively by both the EBRD and the World Bank. Their core aim was to investigate the socioeconomic implications of transitions on nations formerly under the Soviet Union, inclusive of regions in Eastern and Central Europe, as well as countries like Turkey, Germany, Italy, Greece, and Cyprus. Of significance is the fact that the third wave, LITS III, uniquely incorporated questions on objective income. Given the established interrelation between objective income and self-reported health, this study focuses exclusively on data from LITS III. Broadly, LITS III encompasses data from 51,206 households across the 34 countries, with each nation contributing approximately 1,500 samples, ensuring national representation. This representative dataset encapsulates diverse variables, including self reported health, objective income, educational background, employment status, age, household size, gender, maternal educational attainment, and perceptions of income status.

In this study, I focus on the Turkish subset of the LITS III data. The primary dependent variable is the self-reported health status. The operationalization of this subjective health metric is grounded in the query: “How would you evaluate your current health status?” Respondents can choose from five categories: 1) Very Good, 2) Good, 3) Average, 4) Poor, and 5) Very Poor. From this, I construct a binary variable where responses of 'Very Good' and 'Good' are coded as one, while all other responses are coded as zero.

The selection of individual-level independent variables employed in this study aligns with the earlier research and is constrained by the availability of data within the dataset. This analysis

incorporates a series of control variables, such as objective income, level of education, employment status, age and its squared term, household size, gender, marital status, the respondent's mother's education level, and variables concerning relative perceived income.

The econometric models employed in this study incorporate controls for both the educational attainment of respondents and that of their mothers. Within the LITS III dataset, the education variable is segmented into eight distinct classifications: no education, primary education, lower secondary education, (upper) secondary education, post-secondary non-tertiary education, tertiary education (excluding university diplomas), bachelor's degree or higher, and master's or Ph.D. levels. Given sparse observations in specific categories of the mother's education, 'no education' and 'primary education' have been aggregated into a consolidated 'primary education' category. Similarly, 'post-secondary non-tertiary education' and higher educational categories are merged to form an 'above high school education' category. As a result, the maternal education variable is streamlined into four core categories. In the regression analyses, I incorporate the respondent's education level, operationalizing each category with its respective dummy variable, except for the "master's and Ph.D. degrees." A synthesized variable, denoted as "bachelor's degrees and above," is constructed by amalgamating the "bachelor's degree or more" and "master's degree or Ph.D." categories. The gender specification is binary, coded as one for males and zero otherwise. Household size, indicating the number of residents, undergoes a logarithmic transformation to enable elasticity-based interpretations.

In the regression framework, the employment status is captured through a binary variable, which assumes a value of one for employed individuals and zero otherwise. Marital status is similarly operationalized as a binary variable, with a value of one indicating single individuals. The survey also probes respondents' perceived relative income, offering three potential responses: low income, medium income, and high income. To facilitate analysis, three distinct dummy variables were crafted corresponding to these income perceptions. For example, a respondent identifying with the 'high income' category would be represented by a dummy variable set to one for this category, while the other income categories would be set to zero. The primary metric for earnings in the survey is denoted by an annual income variable, which, being continuous in nature, is converted to its natural logarithm to facilitate elasticity interpretations. Furthermore, age and its squared term are incorporated in the model. The inclusion of age squared allows us to capture potential non-linear effects associated with age.

Table 1. Descriptive Statistics

Variables	Number of Observation	Mean	Standard Error
Dependent Variable			
Self Reported Health	1496	0.80	0.40
Independent Variables			
Objective Income	987	32000	22329.07
Education Level	1500	3.93	1.58
Employed	1500	0.54	0.49
Age	1500	37.1	12.25
Household Size	1500	2.9	1.03
Male	1500	0.51	0.50
Single	1500	0.16	0.36
Education Level of Mother	1474	2.35	1.10
Perceived Middle Income	1483	0.23	0.42

Perceived High Income	1483	0.54	0.49

Table 1 presents the descriptive statistics of the dataset, providing insights into various underlying patterns. The dependent variable, self-reported health, is assessed from 1,496 observations and exhibits a mean of 0.80, coupled with a standard error of 0.40, indicating that approximately 80% of respondents assess their health as good or very good.

Within the framework of independent variables, objective Income, ascertained from 987 observations, demonstrates a mean of $32,000 and a substantial standard error of $22,329.07. This substantial deviation underscores the prevalent income disparities within the observed sample. The variable representing education level, encompassing all 1,500 observations, attains a mean value of 3.93, equivalent to a secondary school education level. Concurrently, the education level of mother is derived from 1,474 observations and averages at 2.35, indicative of a lower secondary school education level. Evaluating the employment status from the dataset, 54% of the participants, represented in 1,500 observations, are cataloged as employed. In demographic terms, the data portrays the average age of respondents as 37.1 years, and the mean household size is noted as 2.9, with respective standard errors of 12.25 and 1.03. In terms of gender distribution, the dataset reveals an equitable distribution with male constituting 51% of the total observations. Analyzing marital status, 16% of the respondents are delineated as single, highlighting the diverse marital landscapes within the sample. Delving into perceived income categories, 23% of the 1,483 respondents perceive their income bracket as middle income, while a noteworthy 54% perceive themselves as part of the high income category.

2.2. Model Specification

In this research endeavor, I seek to disentangle the multifaceted relationship between objective income, perceived relative income, and self-reported health through a rigorous empirical lens. The analytical foundation is structured around two separate models:

The first model evaluates the impact of objective income on self-reported health (SRH). This relationship is represented as:

$$SRH = f\begin{pmatrix} Objective\ Income, Schooling, Employed, Age, Age\ Square, \\ Male, Single, and Maternal\ Schooling\ Attainment \end{pmatrix} \quad (1)$$

The second model shifts focus to the influence of perceived relative income on SRH:

$$SRH = f\begin{pmatrix} Perceived\ Income\ Schooling, Employed, Age, Age\ Square, \\ Male, Single, and Maternal\ Schooling\ Attainment, \end{pmatrix} \quad (2)$$

Given the nature of the dependent variable, SRH, which is dichotomous, a logit regression model is selected for the empirical estimation (Wooldridge, 2010). The choice of a logit model is predicated on its suitability for binary outcome variables. It models the probability that an observation will be in a particular category based on a linear combination of independent predictors (Hosmer et al., 2013). In the first model, " $Objective\ Income$ " embodies the concrete financial earnings of respondents. In contrast, in the second model, "$Perceived\ Income$" gauges the individual's subjective assessment of their income relative to others in the society, categorized as low, medium, or high.

Several control variables are incorporated to account for potential confounders in both models. These include $Schooling$, which captures the academic qualifications of respondents; $Employed$ indicating whether an individual is actively engaged in the labor market; Age, representing the chronological age of the respondent; and $Male$, indicating gender of the respondent. $Single$ shows the

responden who is not in a marital union. Furthermore, the model 1 and 2 control for the *Maternal Schooling Attainment* to capture potential intergenerational influences on health.

Given the inherent non-linear relationship between the explanatory variables and dependent variable. The direct interpretation of the slope coefficients becomes challenging. To circumvent this limitation, I employed the margin commands in Stata 13.2 to discern the marginal effects of changes on the dependent variable. Consequently, the slope coefficient becomes amenable to interpretation akin to OLS estimation, drawing parallels with linear coefficients (Greene, 2012). These marginal effects highlight the incremental change in the probability of an individual reporting a specific health status, given a unit change in the explanatory variables, while other factors are held constant. This methodological approach, underpinned by a logit regression framework, allows for a nuanced understanding of the impacts of both objective and perceived income on health outcomes. Furthermore, by controlling for a suite of socio-economic and demographic factors, the model aims to provide a holistic view of the determinants of self-reported health in the context under study.

I proceeded with diagnostic tests to ensure the robustness and validity of the analysis. These tests were undertaken to gauge how well the model conforms to the data and to detect potential multicollinearity issues. First, the goodness-of-fit test is vital as it assesses how well the proposed model fits the observed data. A model that doesn't fit the data well may lead to misleading or incorrect inferences. This test, thus, serves as a diagnostic tool, ensuring that the model's predictions align closely with actual outcomes, enhancing the reliability and validity of the study's findings.

In assessing the goodness-of-fit for the logistic regression model focusing on self-reported health, the analysis utilized a dataset comprising 985 observations, which included 959 unique covariate patterns. The Pearson chi-squared statistic for this model, calculated with 942 degrees of freedom, was found to be 993.24. Importantly, the p-value associated with this statistic stood at 0.12, indicating that the model demonstrates a satisfactory fit to the observed data. This conclusion is drawn from the fact that the p-value surpasses the conventional significance threshold of 0.05. Therefore, there is no substantial evidence to reject the model's effectiveness in accurately depicting the relationship between the predictors and self-reported health outcomes.

Following the goodness-of-fit assessment, I proceeded with another diagnostic test. In the model specification assessment for the logistic regression of self-reported health, I employed the Link test. As presented in Table 2, the linear prediction term (_hat) is statistically significant with a coefficient of 1.127 and a p-value less than 0.001. This indicates that the model is capturing the primary relationship between the predictors and the response variable correctly. However, the squared prediction term (_hatsq) has a coefficient of -0.052 and is not statistically significant (p-value = 0.554). The insignificance of the squared prediction term underscores that the model does not suffer from specification error, affirming that the primary relationship is appropriately captured and higher order terms are not omitted. The constant term, represented by _cons, is not significant, which, in this context, isn't a primary concern. Overall, the model's Pseudo R square of 0.0932 suggests that approximately 9.32% of the variation in the self-reported health can be explained by the predictors in the model. The significant LR chi2(2) value of 131.65 (with a p-value < 0.001) further validates the model's adequacy in distinguishing the outcomes.

Third, the assessment of multicollinearity was conducted through the calculation of Variance Inflation Factor (VIF) values for the variables included in the logistic regression models, with the results are available upon request. In both models, the calculated VIF values are predominantly below

Table 2. The Link Test Results for Model Specification of Self-Reported Health Logistic Regression

Variable	Coefficient
Linear Prediction(_hat)	1127***
	(0.236)
Square Prediction(_hatsq)	-0.052
	(0.089)
Constant(_cons)	-0.046
	(0.161)
Model Statistics	Value
Number of Observations	1454
LR chi2(2)	131.65
Prob > chi2	0.0000
Log Likelihood	-64077
Pseudo R^2	0.0932

the conventional threshold of 10, which is indicative of the absence of severe multicollinearity among the predictor variables. The mean VIF values of 8.95 and 8.71 for Model 1 and Model 2, respectively, further corroborate the absence of alarming levels of multicollinearity. This ensures that the regression coefficients estimated are stable and reliable, allowing for meaningful interpretation and inference. Lastly, standard errors reported in this study are robust standard errors to account for any potential heteroskedasticity or other specification issues in the model.

3. RESULTS

The analysis of the entire dataset given in Table 3 reveals a significant positive relationship between objective income and health with a coefficient of 0.114 ($p<0.01$). When broken down by gender, the relationship remains positive and highly significant for males (0.175, $p<0.01$) but is weaker and less significant for females (0.048).

For perceived relative income, those in the middle-income bracket show a positive association with health (0.047, $p<0.1$). High income perception is more strongly correlated with health (0.073, $p<0.01$). The gender breakdown indicates a stronger association for females in the high-income bracket (0.075, $p<0.05$) compared to males (0.061, $p<0.1$).

Diving deeper into the data, I conducted a heterogenous effects test to understand how the relationship between income and health varies across different demographic groups (see Table 4). In a heterogenous analysis based on employment status, employed males have a strong positive relationship between objective income and health (0.202, $p<0.01$), while the association is negligible for employed females. Among the unemployed, only females show a significant relationship (0.184, $p<0.01$). The perceived relative income for unemployed individuals reveals that those in the middle-income bracket have a significant relationship with health only for females (0.079, $p<0.1$), whereas the high-income bracket demonstrates a significant relationship for both genders, but stronger for males (0.367).

When categorized by marital status, married males and females both exhibit a significant positive relationship between objective income and health. The association is stronger for males (0.180, $p<0.01$) compared to females (0.082, $p<0.05$). For singles, the association is significant for males (0.177, $p<0.05$) and not significant for females.

Table 3. Relative Income, Absolute Income, Health

	Whole Data	**Male**	**Female**
Objective income	0.114***	0.175***	0.048
	(0.024)	(0.036)	(0.032)
Observations	985	499	454
Perceived relative Income			
Middle Income	0.047*	0.041	0.056
	(0.026)	(0.039)	(0.034)
High Income	0.073***	0.061*	0.075**
	(0.023)	(0.033)	(0.031)
Observations	1454	743	711

Robust standard errors are reported in parentheses. Significance levels for the coefficients are indicated as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$ for the 1%, 5%, and 10% levels, respectively. All regressions control for objective income (in the first model), age and their squared terms, and include dummies for education, male, single, employment status, maternal educational attainment, and perceived income (in the second model).

Analyzing by age, males below the median age of 35 show a positive significant relationship between objective income and health (0.143, p<0.01), while females do not. However, males over the median age of 35 demonstrate a stronger positive association (0.226, p<0.01), with females also showing significance (0.122, p<0.01).

Lastly, considering educational attainment, males with below-median education levels have a positive significant relationship between objective income and health (0.208, p<0.01), and females show a weaker yet significant relationship (0.073, p<0.05). For those above the median education level, neither gender demonstrates a significant association with objective income. In terms of perceived relative income, the high-income perception is significant for below-median educated males (0.077, p<0.1) and females (0.074, p<0.05), but the results are mixed for those with above-median education.

Table 4. Heterogenous Effects of Perceived Relative and Objective Income on Health

	Employed		**Unemployed**	
	Male	Female	Male	Female
Objective income				
	0.202***	-0.001	0.012	0.184***
	(0.045)	(0.059)	(0.093)	(0.062)
Observations	352	211	131	230
Perceived relative Income				
Middle Income	0.016	0.022	0.107	0.079*
	(0.046)	(0.056)	(0.073)	(0.045)
High Income	0.088**	-0.009	0.367	0.144***
	(0.041)	(0.049)	(0.063)	(0.043)
Observations	480	308	241	368
	Married		Single	
	Male	Female	Male	Female
Objective income	Health	Health	Health	Health
	0.180***	0.082**	0.177**	-.068
	(0.044)	(0.035)	(0.090)	(0.070)

Observations	396	367	76	87
Perceived relative Income				
Middle Income	0.057	0.063*	-0.080	0.054
	(0.043)	(0.038)	(0.077)	(0.097)
High Income	0.073*	0.093***	0.001	0.041
	(0.37)	(0.033)	(0.078)	(0.077)
Observations	634	589	101	112
	Under median 35		Over median age 35	
	Male	Female	Male	Female
Objective income	Health	Health	Health	Health
	0.143***	-0.039	0.226***	0.122***
	(0.046)	(0.045)	(0.075)	0.046
Observations	239	202	217	224
Perceived relative Income				
Middle Income	-0.043	0.060	0.108*	0.058
	(0.054)	(0.040)	(0.057)	(0.063)
High Income	-0.004	0.028	0.103**	0.112
	(0.046)	(0.032)	(0.050)	(0.054)
Observations	373	391	370	310
	Under median education		Over median education	
	Male	Female	Male	Female
Objective income	Health	Health	Health	Health
	0.208***	0 .073*	0.078	0.026
	(0.047)	(0.038)	(0.051)	0.062
Observations	363	322	134	113
Perceived relative Income				
Middle Income	0.058	0.087*	-0.058	-0.015
	(0.047)	(0.044)	(0.079)	(0.052)
High Income	0.077*	0.074**	-0.043	0.082
	(0.040)	(0.037)	(0.069)	(0.051)
Observations	546	490	193	215

Robust standard errors are reported in parentheses. Significance levels for the coefficients are indicated as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$ for the 1%, 5%, and 10% levels, respectively. All regressions control for objective income (in the first model), age and their squared terms, and include dummies for education, male, single, employment status, maternal educational attainment, and perceived income (in the second model).

4. DISCUSSION

In the realm of economic research, the intricate relationship between income and health remains a cornerstone of interdisciplinary studies, spanning both health and economic realms. The research delves into this relationship, taking into account the unique socio-economic transitions Turkey has undergone, thereby adding nuance to the extensive existing literature.

Consistent with prior economic literature, the initial results confirm a well-established positive correlation between objective income and health outcomes (Bombak, 2013). Yet, as with many economic phenomena, the intricacies emerge when distinctions, such as gender differences, are made.

Although Carrieri (2008)'s analysis in the Italian context documented a generalized positive correlation, the results suggest a more gender-differentiated pattern, particularly emphasizing male populations. This gender-specific nuance finds support in the recent work of Muhammad and Priya Maurya (2023), offering a richer understanding of how income variations affect health outcomes differently across genders.

Drawing parallels with studies from Canada and Britain (Humphries and van Doorslaer, 2000; Hernández-Quevedo et al., 2004), the research underscores the critical role of socio-economic structures and cultural paradigms in shaping the income-health nexus. Furthermore, the findings on perceived economic well-being resonate with the empirical observations of Cialani and Mortazavi (2020). Their econometric evaluation using European Health Interview Survey data emphasized the greater explanatory power of subjective income over objective measures in predicting self-rated health outcomes. I identify a robust positive correlation between perceived income and favorable health outcomes, with a particularly pronounced effect among females. This reiterates the theoretical assertion in economics that perceptions and societal influences can, at times, hold greater significance than hard metrics (Hayo and Seifert, 2003; Adler and Stewart, 2010; Bridges and Disney, 2010; Senik, 2009; Muhammad and Priya Maurya, 2023). This insight contributes to the broader economic discourse on the weightage of perceived vs. actual financial standings in determining health outcomes.

In furthering the economic literature, the analysis goes beyond conventional methods. While Cialani and Mortazavi (2020) acknowledged various covariates in their study, this paper delves deeper by leveraging heterogeneous effects tests across distinct sub-populations. This advanced methodological approach illuminates the nuanced income-health dynamics within Turkish demographics, emphasizing the heterogeneity observed across employment status, marital status, age, and educational attainment. Such methodological depth and granularity, often overlooked in previous works, distinguish this study as a significant contribution to the discipline.

Nevertheless, an academic inquiry necessitates a thorough examination of its limitations. The study is bound by the constraints of the LITS III dataset, which may restrict the generalizability of the results. Further research, possibly employing panel data methodologies or mixed-methods, could enrich the understanding and address potential biases inherent in self-reported metrics.

4. CONCLUSION

The comprehensive analysis undertaken in this study, based on the Life in Transition Survey (LITS) III, elucidates the multifaceted relationship between income—both objective and perceived relative—and health outcomes within the Turkish demographic landscape. Several key patterns emerge, underscoring the complexity of these interactions. Notably, while objective income consistently demonstrates a positive correlation with health outcomes, the strength and significance of this relationship exhibit marked variability when stratified by gender. Males consistently present stronger associations between objective income and health, particularly in the domains of employment and age. In contrast, the influence of perceived relative income—especially within the high-income perception bracket—appears particularly potent among certain female subgroups, as well as within the unemployed demographic. Additionally, the intricate dynamics between marital status and health outcomes spotlight the pronounced effects of objective income among married males, emphasizing the significance of socio-economic factors in marital contexts. Age, a pivotal determinant in many health studies, further refines the understanding of income-health dynamics, revealing stark contrasts between younger and older males, and an intriguing pattern among older females. Education emerges as another crucial mediator, particularly when considering objective income. Interestingly, the

pronounced effects among those with below-median education levels underscore the potential protective benefits of tangible financial resources within this demographic, especially among males. In essence, this study unravels the nuanced tapestry of income and health interplay within Turkey's socio-demographic milieu. The pronounced disparities observed across gender, employment status, marital realms, age brackets, and educational attainment emphasize the multifarious nature of these associations. These findings underscore the importance of considering the nuanced roles that both tangible and perceived financial statuses play in health, and they highlight the need for tailored interventions that address these disparities across different population segments.

Ethical Statement

In the writing and publication processes of the study titled "The Impact of Objective and Perceived Relative Incomes on Health Outcomes in Turkey: Insights from the Life in Transition Survey," research and publication ethics have been strictly adhered to, and no data manipulation has been conducted. Ethics committee approval was not required for this study.

Contribution Statement

The author of the study has contributed to all stages of the study, from writing to drafting, and has approved the final version after reviewing it.

Conflict of Interest Statement

This study has not led to any individual or institutional/organizational conflict of interest.

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Extended Abstract

The Impact of Objective and Perceived Relative Incomes on Health Outcomes in Turkey: Insights from the Life in Transition Survey

Aim: This research examines the relationship between objective and perceived relative incomes and health outcomes in Turkey, drawing data from the Life in Transition Survey (LITS) III. The study aims to discern how different income measures influence health across various demographic segments, including gender, employment status, marital status, and educational attainment. **Method:** The analysis employs data from the third wave of the LITS survey, which includes responses from approximately 1,500 households in Turkey. The primary dependent variable is self-reported health (SRH), measured on a five-point scale and dichotomized for analytical purposes. Independent variables include objective income (annual income) and perceived relative income (categorized as low, middle, or high), alongside control variables such as age, gender, employment status, marital status, and educational attainment.To assess the impact of income on health outcomes, two logistic regression models are employed. The first model focuses on the relationship between objective income and SRH, capturing the concrete financial earnings of respondents. The second model examines the impact of perceived relative income on SRH, gauging individuals' subjective assessment of their income relative to others in society.In addition to income variables, the models incorporate several socio-economic and demographic controls to account for potential confounders. These controls include education level (both the respondents' and their mothers' educational attainments), employment status, age and age squared (to capture potential non-linear effects associated with age), gender, marital status, household size (logarithmically transformed), and perceived relative income.Goodness-of-fit tests, including the Pearson chi-squared statistic and the Link test, are conducted to assess the model's fit to the observed data and to detect any potential specification errors. Multicollinearity is assessed using Variance Inflation Factor (VIF) values to ensure the stability and reliability of the regression coefficients. Marginal effects are calculated using the margin commands in Stata 13.2 to interpret the incremental changes in the probability of an individual reporting a specific health status given a unit change in the explanatory variables.

Findings: Objective income consistently correlates positively with health, with the relationship being particularly strong for employed males. This suggests that higher income levels provide better access to health resources and reduce financial stress, thereby improving health. For perceived relative income, the impact is especially significant among female subgroups and the unemployed. Individuals who perceive themselves as having higher income relative to others report better health outcomes, indicating that subjective economic status, shaped by personal and social comparisons, plays a crucial role in health perceptions.Disparities in health outcomes based on marital status, age, and education emerge. Married males, individuals below 35, and those with below-median education display pronounced associations between objective income and health. For example, younger males (below the median age of 35) show significant positive health outcomes associated with higher objective income, whereas the relationship is weaker among females in the same age group. The positive relationship between income and health is also stronger among married individuals and those with lower educational attainment.Diving deeper into the data, a heterogeneous effects test reveals how the relationship between income and health varies across different demographic groups. Employed males have a strong positive relationship between objective income and health, while the association is negligible for employed females. Among the unemployed, only females show a significant relationship. For perceived relative income, unemployed individuals in the middle-income bracket have a significant relationship with health only for females, whereas the high-income bracket demonstrates a significant relationship for both genders but stronger for males.

Conclusion: The study underscores the complex relationship between income and health in Turkey, emphasizing the importance of considering both objective and perceived economic measures. The findings suggest that health interventions should be tailored to address the specific needs of different demographic groups. For instance, policies aimed at improving health outcomes could focus on enhancing both actual income levels and individuals' perceptions of their economic status. By recognizing the nuanced roles of both tangible and perceived financial statuses, more effective health policies can be developed for transitional economies like Turkey. Future research should further explore these complex relationships through longitudinal and mixed-method approaches to inform robust policy-making in similar socio-economic contexts.This research contributes valuable insights into the dynamics of income and health, highlighting the need for tailored health interventions across distinct demographic segments in transitional settings. The results emphasize the critical role of both objective income and perceived economic status in shaping health outcomes, underlining the necessity for nuanced and targeted health policies.