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EXPLORING THE RELATIONSHIP BETWEEN QUALITY OF LIFE AND THE DEGREE OF INTERNATIONALISATION OF THE ECONOMY: EVIDENCE FROM PORTUGAL (2005-2022)

ABSTRACT

This study explores the complex, bidirectional relationship between internationalisation and quality of life, a topic previously explored mostly from a one-sided perspective. While past research has emphasized how internationalisation can influence well-being, this study address a gap in the literature by also investigating how a country's quality of life might affect its degree of internationalisation. Using a quantitative approach, the research analyses annual data from 2005 to 2022, focusing on key indicators such as the degree of economic openness, the well-being index, and set of control variables. The methodological framework includes multiple regression models, aiming to identify key determinants and assess the strength and direction of the relationships among variables. The findings show that internationalisation does exert a direct, significant impact on well-being, instead, life expectancy is found to be the primary driver of quality of life. Conversely, quality of life does not appear to directly influence internationalisation, with Gross Domestic Product (GDP) per capita emerging as the most significant explanatory variable. These results suggest that the relationship between internationalisation and quality of life is influenced by underlying economic and structural factors, highlighting the importance of integrated public policies that concurrently advance both social welfare and international economic engagement.

Keywords: *globalisation; internationalisation; quality of life; well-being.*

1. Introduction

International trade has historically played a central role in shaping social, cultural, and economic dynamics, a role that continues in today's increasingly interconnected world. In recent decades, many of these transformations have been intensified by the process of globalisation. While several studies have explored how global economic integration influences growth and efficiency (Dreher et al., 2008), relatively limited attention has been given to its implications for broader measures of social well-being.

The internationalisation of trade is often regarded as a driver of economic development and, by extension, a potential contributor to improvements in quality of life (Mullen et al., 2009). However, the relationship between a country's degree of internationalisation and the well-being of its population remains insufficiently explored. Existing research tends to focus primarily on macroeconomic performance, and findings regarding the link between

internationalisation and quality of life are fragmented and sometimes contradictory (Majeed, 2018).

Thus, this study addresses a critical gap in the literature by investigating the bidirectional relationship between the economy's degree of internationalisation and quality of life. Accordingly, this research is guided by the following research questions: *What is the nature of the relationship between the degree of internationalisation of the economy and the level of quality of life? How do these variables influence one another over time?* To address these questions, we adopt a quantitative methodology based on secondary data provided by the Instituto Nacional de Estatística (INE), covering the period from 2005 to 2022.

To strengthen the conceptual foundation of the study, the relationship between internationalisation and quality of life is conceptualised as multifaceted and potentially bidirectional, operating through several theoretical channels. On the one hand, internationalisation may enhance quality of life by promoting economic growth, improving access to goods and services, facilitating technological transfer, and generating employment, as emphasized in neoclassical and globalisation-oriented frameworks. On the other hand, critical perspectives highlight that these benefits are not always evenly distributed and may lead to adverse outcomes, such as income inequality, labour market instability, and environmental pressures, making the overall impact dependent on institutional quality, public policies, and redistributive capacity.

Conversely, higher levels of quality of life, associated with stronger institutions, better social conditions, and greater human development, can foster a more attractive and competitive environments for international engagement. Overall, this study adopts the view that the relationship between internationalisation and quality of life is complex, context-dependent, and influenced by structural factors (Kibria & Toufique, 2024; Naz, 2023; Ndofirepi, 2024; Omri et al., 2025), and therefore explores both directions of association within the Portuguese context.

2. Literature review

2.1. Internationalisation

The distinction between internationalisation and globalisation is notable. Internationalisation is generally understood as the expansion of cross-border activities while maintaining the relevance of national boundaries (Ramírez & Rodriguez-Medina, 2023). Conversely, globalisation refers to the intensification of worldwide social, political, and economic interactions, resulting in a complex scenario of interconnected events and processes (Anthony, 1990; Kibria & Toufique, 2024).

Oman (1996) characterizes globalisation as the significant rise in economic activity across national and regional political borders. This is evidenced by increased movements of goods, services, property rights, and people, facilitated by the reduction of governmental barriers and technological advancements. Held and McGrew (1998) emphasizes the global integration of trade, highlighting the increasing ease with goods and services move across borders through imports and exports. Thus, globalisation emerges as a multidimensional concept that includes economic, social, political, and environmental dimensions (Keohane & Nye, 2003).

On the other hand, internationalisation is seen as a firm-level process involving the extension of activities, such as research, development, production, and sales into foreign markets (Hollensen, 2011). It is often framed as a gradual, step-by-step engagement with international markets, implying growth and development. Over time, this sustained involvement contributes not only to firm-level benefits but also to broader economic development at national and local levels (Campos et al., 2018).

The conceptual foundations of internationalisation originate from Coase's (1960) transaction cost theory, which was applied to multinational firms by Buckley and Casson (1976). Several theoretical models have since been developed to explain the motivations strategies behind internationalisation (Francischini & Lima, 2022). Among them, the Uppsala model by Johanson and Vahlne (1977) conceptualizes internationalisation as a learning-based, incremental process, typically beginning in markets that are geographically and culturally closer. Internalization theory, by contrast, posits that firms internationalize to better control operations and reduce transaction costs (Buckley & Casson, 1976). The Resource Based View (RBV) adds another layer by asserting that firms leverage their unique internal resources and capabilities to gain competitive advantages in international markets (De Moraes et al., 2006).

At the macroeconomic level, the internationalisation of an economy is often assessed using indicators such as the degree of openness, typically measured by the ratio of total exports and imports to a country's Gross Domestic Product (GDP) (Gräbner et al., 2021). This metric reflects the extent of a country's integration into the global economy and serves as key reference point for analysing the effects of trade on national competitiveness, income distribution, and overall economic development (Mroczek-Dąbrowska, 2016).

Understanding the scope and dynamics of internationalisation is crucial for exploring its broader socioeconomic consequences. One of the most important aspects of this analysis involves its potential relationship with quality of life (QOL) – a multidimensional construct including health, income, education, and overall well-being – which is examined in the following section.

2.2. Quality of Life

The concept of quality of life (QOL) has been widely analysed across disciplines, resulting in varied and sometimes divergent interpretations. At its core, QOL reflects the multifaceted conditions of human existence and is often associated with terms such as well-being, life satisfaction, happiness, living standards, and development. It is a multidimensional concept including both objective indicators (e.g., income or life expectancy) and subjective dimensions (e.g., personal satisfaction and perceived well-being) (Ahmad et al., 2023; Matarrita-Cascante, 2010).

Some scholars treat QOL as synonymous with health, while others argue that health is only one component within a broader conceptual framework (Fleck et al., 1999). Day and Jankey (1996) identified four primary perspectives of QOL: economic, biomedical, psychological, and general. The economic view prioritizes material indicators such as income and employment. In contrast, the psychological perspective focuses on individual subjective experiences. Biomedical approaches link QOL directly to health outcomes, whereas general frameworks highlight its comprehensive, multidimensional nature (Day and Jankey, 1996).

This multidimensionality is shaped by a variety of internal and external factors, including individual traits, socioeconomic conditions, and environmental influences. Sen (1997) emphasized the importance of basic material and social elements – such as housing, safety, healthcare access, and income – in achieving well-being. Similarly, Ryff (1998) stressed the role of social interactions and civic engagement in fostering emotional resilience and enhancing collective welfare. Environmental factors such as pollution and public safety also influence individuals' perceptions of their QOL (Carson, 2015).

Equity, particularly in health and education, is essential in promoting QOL across populations. Braveman et al. (2011) highlight health equity as a foundational element for reducing disparities and improving social well-being. Education similarly empowers individuals to understand and improve their conditions, contributing directly to both personal development and social progress (Brondos, 2022).

Workplace dynamics also contribute significantly to QOL. Motivational factors, job satisfaction, and work-life balance are key components in achieving holistic well-being (Bevins, 2018). Broader social and economic stability further support autonomy and individual fulfilment, while their absence constrains opportunity and decreases QOL (Corbridge, 2002).

Given its multifaceted nature, QOL must be analysed as a socially constructed phenomenon shaped by both measurable factors, such as income, education, and health, as well as personal perceptions of life satisfaction (Sinha, 2019). Objective indicators include metrics such as GDP per capita, life expectancy, access to health care, and employment rates (McGillivray & Clarke, 2006), while subjective aspects involve emotional well-being, happiness, and meaning in life (Veenhoven, 2007).

The Human Development Index (HDI) developed by the United Nations Programme (UNDP, 2010) represents one of the most well-known attempts to quantify QOL, focusing on life expectancy, education, and income. However, its reliance on aggregate data can hide inequalities and marginalize disadvantaged groups (Stiglitz, 2012). In response, the Inequality-Adjusted Human Development Index (IDHAD) was established to account for disparities, though its methodology has drawn criticism and led to calls for incorporating subjective inequality measures (Scherbov & Gietel-Basten, 2020).

While GDP per capita remains a widely used proxy for QOL (Dollar & Kraay, 2002), it has clear limitations. It does not reflect income distribution, which is a critical determinant of individual well-being, nor does it account for non-market contributions such as unpaid domestic work, which significantly enhance overall welfare (Folbre, 2008). Therefore, a holistic understanding of QOL requires contributions from multiple disciplines to continually refine and contextualize the concept.

Closely linked to QOL is the notion of well-being (Omri et al., 2025), often used interchangeably in broader discussions. Well-being refers to a favourable life experience but does not always define the specific attributes that make life favourable (Diener, 2010). It is typically framed as a subjective evaluation of happiness, fulfilment, and contentment, aligning closely with broader definitions of QOL and requiring a similarly integrated analytical approach (Kiefer, 2008).

The Instituto Nacional de Estatística (INE, 2019) defines well-being as achieving the highest standard of QOL, incorporating not just material conditions but also broader factors such as environmental quality, health, education, time management, civic engagement, and cultural participation. This expansive view highlights that well-being includes more than economic or consumer satisfaction – it involves strong social ties, personal safety, and life purpose (Grinstein et al., 2022). Standardized indicators as physical health, infant mortality, and life expectancy enable comparative assessment across countries (Mukherjee & Krieckhaus, 2012).

However, to monitor well-being effectively, it is essential to consolidate relevant data into a multidimensional indicator that offers clarity and policy relevance. No single metric can fully capture the complexity of individual well-being (Boncinelli & Casini, 2014). Addressing this need, the INE developed a well-being index to periodically report on social progress and individual welfare. This index has two dimensions – material living standards and overall QOL – and includes ten domains such as economic well-being, work-life balance, health, education, environmental conditions, personal safety, civic engagement, and subjective well-being (INE, 2019).

3. Hypotheses development

Well-being, recognized as essential for long-term economic development, is widely regarded as a central objective of national policy (Mukherjee & Krieckhaus, 2012; Omri et al., 2025). This aligns with the perspective that, as nations have become increasingly integrated into the global economy, public expectations and levels of well-being have risen significantly (Stiglitz et al., 2009).

Nevertheless, the effects of internationalisation on well-being are still contested. While dependency theory argues that international trade and foreign direct investment (FDI) perpetuate inequalities (Asongu, 2014), the neoliberal perspective emphasizes the role of open markets in promoting human prosperity (Sirgy et al., 2004).

International trade directly impacts QOL by driving economic growth, creating jobs, and increasing access to goods and services. These economic shifts, enhanced by globalisation, influence income levels and living standards (Adhikari, 2018). In support of this view, recent studies have shown that international trade contributes to both subjective and objective well-being indicators, including improvements in the HDI (Tahir & Majeed, 2021; Wang et al., 2023).

From a political perspective, internationalisation is linked to increased economic freedom and reductions in corruption, both of which positively affect human well-being (Majeed, 2018). In this context, participation in international organizations, driven by national interest, can also produce outcomes that enhance well-being (Mukherjee & Krieckhaus, 2012).

Despite this, progress in well-being has not been evenly distributed. While internationalisation is positively associated with well-being in developing countries, it has often led to a widening of social inequalities in developed nations (Gaston & Gulasekaran, 2009).

Greater economic openness – characterized by specialization, economies of scale, enhanced competitiveness, and innovation incentives – is considered vital for economic growth and poverty reduction (Agénor, 2004). Accordingly, the prevailing view emphasizes the positive effects of internationalisation on QOL, though access to technology, knowledge transfer, and development support (Mukherjee & Krieckhaus, 2012). However, these benefits require complementary policies to ensure their equitable and sustainable distribution (Krueger, 2020).

The debate over free trade reflects these tensions. Proponents argue that freed trade enhances consumer and producer efficiency, while critics highlight its environmental costs and tendency to disproportionately benefit multinational corporations (Mullen et al., 2009). Neoclassical theory holds that export-led growth can jeopardize QOL when prices increase for domestically essential goods, reducing affordability for local consumers (Mullen et al., 2009).

However, exports, when backed by sound industrial policies, can foster job creation, economic diversification, and resilience, all of which positively impact QOL (Haussmann, 2020; Rodrik, 2018). Furthermore, export-led growth promotes domestic efficiency through economies of scale and supports higher employment (Sirgy et al., 2004).

On the imports side, increased access to goods can alleviate scarcity, intensify competition, and reduce prices, enhancing customer welfare (Mullen et al., 2009). Although imports can have short-term negative impacts, their long-term effects often include higher personal income and employment, together with technological advances in healthcare, education, and industry (Sirgy et al., 2004: Tahir & Majeed, 2021).

Therefore, increased imports play a crucial role in improving social and health welfare by boosting tax revenues, which, in turn, translate into better public services. According to Sirgy et al. (2004), increased tax collection allows governments to increase public spending in

several areas, such as health, education, and public security. Based on these arguments, the following relationship can be established:

> ***Hypothesis 1:*** *The higher the degree of internationalisation of an economy, the higher the level of quality of life.*

Conversely, the QOL of a country can also influence its degree of internationalisation. Countries with high living standards often provide stable and attractive environments for investment, aligning with Dunning's eclectic theory, which highlights ownership, location, and internalization advantages (Dunning, 1980). Therefore, it is suggested that countries with high standards of living provide more stable and attractive environments for foreign investment.

Institutional quality plays a key role in this process. Strong institutions enhance the effectiveness of national resources and facilitate international engagement (Li, 2018). In turn, underdeveloped institutional environments can either hinder internationalisation or motivate firms to expand into more developed markets to offset domestic constraints (Cuervo-Cazurra & Ramamurti, 2017). Institutional factors such as national income, robust institutions, trade openness, and the availability of venture capital positively impact internationalisation (Ndofirepi, 2024).

Countries with high standards of living tend to attract FDI, improve production efficiency, and create environments conducive to innovation and international collaboration (Sölvell, 2015). These countries also tend to wield soft power – the ability to influence others through cultural and institutional appeal rather than coercion – which further boosts their global presence (Nye, 2004). Social trust and institutional legitimacy are also important. Trust between citizens and institutions supports both economic growth and the smooth integration of national economies into international markets (Putnam, 2000).

From a comparative advantage theory, countries with higher living standards are more likely to specialize in high-value goods and services, contributing to their deeper participation in international trade (Senga et al., 2017). Similarly, Krugman (2018) argues that advanced economies engage in sophisticated trade patterns, while economic geography theories suggest these countries are better integrated into global value chains due to their superior infrastructure, technology, and skilled labour (Coe et al., 2008). Therefore, it is expected that:

> ***Hypothesis 2:*** *The higher the level of quality of life, the greater the degree of internationalisation of the economy.*

4. Methodology

4.1. Data collection and sample

The research adopts a quantitative approach, relying on secondary data gathered from the Instituto Nacional de Estatística (INE). The sample consists of a time series for Portugal covering the period from 2005 to 2022, yielding 18 observations for each variable. This period was chosen to ensure the continuous availability and consistency of data, enabling a reliable longitudinal analysis. Prior to analysis, the dataset was carefully examined, and no missing values were identified. Given the aggregated nature of the data, no extreme outliers required removal or transformation beyond standard adjustments to meet regression assumptions.

A consolidated database was subsequently developed, organised by reference year to ensure temporal alignment and completeness. The dataset contains no omissions or inconsistencies. As the data are aggregated at the national level, the sample does not include individual-level

or subjective responses, but instead reflects macro-level trends derived from standardized economic and social indicators (INE, 2019).

Table 1 presents the correlation matrix for the variables under study. The results reveal positive and statistically significant correlations between the well-being index (IBE) and several key variables, including the degree of openness (GA), GDP per capita (PIB), life expectancy (EV), and average years of schooling (AME). Conversely, a negative and statistically significant correlation is observed between IBE and inequality (GINI).

Table 1. Correlation matrix

Variables	1	2	3	4	5	6	7
1. IBE	1.000						
2. GA	0.744***	1.000					
3. PIB	0.890***	0.698**	1.000				
4. TD	-0.446	-0.323	-0.603**	1.000			
5. EV	0.927***	0.824***	0.849***	-0.374	1.000		
6. AME	0.928***	0.858***	0.861***	-0.386	0.989***	1.000	
7. GINI	-0.932***	-0.675**	-0.809***	0.114	-0.880***	-0.863***	1.000

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. IBE = well-being index, GA = degree of openness, PIB = GDP per capita, TD = unemployment rate, EV = life expectancy, AME= average years of schooling, GINI = inequality.

4.2. Variables

The study employs a bidirectional model to analyse the relationship between the degree of internationalisation (DOI) of an economy and quality of life (QOL). In hypothesis 1, QOL is positioned as the dependent variable. The IBE, developed by the Instituto Nacional de Estatística (INE, 2019), is a multidimensional composite index including ten domains – such as, health, education, social relations, and work – offering a comprehensive representation of QOL.

The independent variable in this hypothesis is DOI, proxied by GA, calculated as the sum of exports and imports relative to Gross Domestic Product (GDP). Widely adopted in the literature, this metric effectively captures a country's level of internationalisation (Gräbner et al., 2021; Mroczek-Dąbrowska, 2016), and reflects Portugal's exposure to foreign markets.

Conversely, hypothesis 2 treats QOL as the independent variable and DOI as the dependent variable. This approach is grounded in theoretical perspectives emphasizing the role of institutional quality and well-being in facilitating international integration and economic expansion (Ndofirepi, 2024; Sölvell, 2015).

To ensure analytical rigor, the model includes a set of control variables that account for other structural factors potentially influencing the target variables. Despite its limitations – particularly its insensitivity to income distribution (Stiglitz, 2012) – GDP per capita (PIB) remains a widely recognized indicator of national wealth. Higher income levels are generally associated with enhanced living conditions (Dollar & Kraay, 2002) and greater capacity for international engagement through innovation and investment.

The unemployment rate (TD) is included as a control for labour market conditions, given its established link with economic vulnerability and diminished well-being. High unemployment constrains income generation and social mobility, adversely affecting both QOL and the potential for economic competitiveness (Braveman et al., 2011).

Life expectancy at birth (EV), a key indicator of public health and human development, is also incorporated. Its relevance extends beyond medical advancements, serving as a reflection of broader living conditions and access to essential services (Braveman et al.,

2011). Thus, it captures an essential dimension of well-being that may influence a country's international economic capacity.

Average years of schooling (AME) represents educational attainment, a foundational element of human capital formation. Higher levels of education contribute to individual empowerment, improved QOL, and increased national productivity, reinforcing international competitiveness (Brondos, 2022). For this reason, AME is an important control variable for both hypotheses.

Finally, inequality is accounted for through the Gini coefficient (GINI), which measures income distribution. Elevated levels of inequality decrease social cohesion and hinder equitable development, negatively impacting overall well-being (Stiglitz, 2012). Including GINI in the model allows for a more nuanced understanding of the redistributive effects of internationalisation and QOL.

5. Results

The statistical analysis was conducted using the R software via the JASP interface (Jeffreys's Amazing Statistics Program), a free and open-source platform. To test hypothesis 1, a multiple linear regression was conducted, using the well-being index (IBE) as the dependent variable representing quality of life (QOL). The independent variable was the degree of openness (GA), serving as a proxy for the degree of internationalisation (DOI), while the remaining variables (PIB, TD, EV, AME, and GINI) were included as controls to isolate the specific effect of internationalisation on quality of life.

The analysis adopted a stepwise approach, beginning with a comprehensive model that included all selected variables. Successive refinements were applied to meet the assumptions of multiple linear regression, such as linearity, homoscedasticity, and normality of residuals, as recommended by Marôco (2021). These adjustments were both statistically and theoretically grounded, with each stage of the model development outlined in Table 2.

Table 2. Adjustment process for regression model (hypothesis 1)

Model	Included variables	Issues identified	Adjustments made	Adjusted R^2	Assumptions met
Initial	IBE, GA, PIB, EV, TD, AME, GINI	High multicollinearity	Removed TD and GINI	0.965	No
Adjusted	IBE, GA, PIB, EV, AME	Heteroscedastic residuals	Log and squared-root transformations	0.968	Partially
Final	IBE, GA, TD, EV	Final adjustments to reduce redundancy	Final optimized and adjusted model	0.970	Yes

IBE = well-being index, GA = degree of openness, PIB = GDP per capita, EV = life expectancy, TD = unemployment rate, AME= average years of schooling, GINI = inequality.

In the final model, two variables remained statistically significant: unemployment rate (TD) ($\beta = -0.433$; $p < 0.001$), and life expectancy at birth (EV) ($\beta = 0.944$; $p < 0.001$) (Table 3). These results reinforce the notion that improved health outcomes are positively associated with well-being, while high unemployment rate acts as a significant constraint on quality of life

Interestingly, the degree of openness (GA) showed a negative but non-significant effect on QOL ($\beta = -0.074$; $p < 0.259$), suggesting that the degree of internationalisation, as measured in this model, does not exert a statistically meaningful influence on quality of life (Table 3).

While the model is statistically robust (adjusted $R^2 = 0.970$), the lack of a significant effect of DOI on QOL suggests that hypothesis 1 is not empirically supported by the data.

Table 3. Regression coefficients (hypothesis 1)

	Model	Unstandardized	Standard Error	Standardized	t	p	95% CI		Collinearity Statistics	
							Lower	Upper	Tolerance	VIF
M_0	(Intercept)	37.122	1.595		23.270	< 0.001	33.757	40.488		
M_1	(Intercept)	-410.283	26.879		-15.264	< 0.001	-467.933	-352.633		
	GA	-0.082	0.070	-0.074	-1.178	0.259	-0.233	0.068	0.453	2.209
	TD	-0.825	0.083	-0.433	-9.939	< 0.001	-1.002	-0.647	0.932	1.073
	EV	5.766	0.375	0.944	15.376	< 0.001	4.962	6.570	0.469	2.134

GA = degree of openness, TD = unemployment rate, EV = life expectancy.

To test hypothesis 2, a second multiple linear regression was conducted, with degree of internationalisation serving as the dependent variable. The aim was to determine whether a nation's quality of life, along with a set of control variables (PIB, TD, EV, AME, and GINI), helps explain the extent of its international economic integration.

Following Marôco (2021), the model was iteratively refined to enhance statistical reliability and ensure that all key regression assumptions were fulfilled (Table 4). The model demonstrated a strong overall fit, with an adjusted R^2 of 0.774, suggesting that the included variables explain a substantial portion of the variation in DOI during the study period.

Table 4. Adjustment process for regression model (hypothesis 2)

Model	Included variables	Issues identified	Adjustments made	Adjusted R^2	Assumptions met
Initial	IBE, TD, EV, PIB, AME, GINI	Severe multicollinearity; non-normal residuals	Removed EV and AME due to high correlation	0.799	Partially
Adjusted	IBE, TD, PIB, GINI	Heteroscedastic residuals; residual multicollinearity	Further variable simplification	0.641	Improved, but still limited
Final	IBE, TD, PIB	Lack of significance for IBE	Removed redundant variables	0.774	Yes

IBE = well-being index, TD = unemployment rate, EV = life expectancy, PIB = GDP per capita, AME= average years of schooling, GINI = inequality.

The final model retained three variables: quality of life (IBE) ($\beta = -0.429$; $p = 0.128$), GDP per capita (PIB) ($\beta = 1.426$; $p < 0.001$), and the unemployment rate (TD) ($\beta = 0.397$; $p < 0.05$) (Table 5). The results show that both GDP per capita and unemployment have a positive and statistically significant effect on DOI. Conversely, QOL shows a negative but non-significant effect, indicating that higher levels of quality of life do not appear directly influence the internationalisation of the Portuguese economy. Therefore, hypothesis 2 is not supported by the empirical data.

Table 5. Regression coefficients (hypothesis 2)

	Model	Unstandardized	Standard Error	Standardized	t	p	95% CI		Collinearity Statistics	
							Lower	Upper	Tolerance	VIF
M_0	(Intercept)	61.000	1.423		42.854	< 0.001	57.997	64.003		
M_1	(Intercept)	-0.754	8.945		-0.084	0.934	-19.938	18.430		
	IBE	-0.383	0.237	-0.429	-1.618	0.128	-0.891	0.125	0.189	5.290
	TD	0.675	0.235	0.397	2.872	0.012	0.171	1.178	0.697	1.435

PIB	3.859	0.771	1.426	5.007	< 0.001	2.206	5.512	0.164	6.089

IBE = well-being index, TD = unemployment rate, PIB = GDP per capita.

It is worthwhile noting that, although the study adopts a bidirectional analytical framework, the empirical approach is based on multiple linear regression, which identifies statistical associations rather than causal relationships. Thus, the two hypotheses should not be interpreted as establishing causality in opposite directions, but rather as exploring whether significant relationships exist when the roles of dependent and independent variables are reversed. This approach allows for a more comprehensive understanding of the interaction between internationalisation and quality of life, while acknowledging the methodological limitations in capturing causal dynamics.

6. Discussion and conclusion

Regarding hypothesis 1, which proposed that more internationalized economies tend to exhibit higher levels of quality of life, the empirical results do not offer direct support. In the final adjusted model, the degree of internationalisation – proxied by the degree of openness – was not statistically significant ($\beta = -0.074$; $p = 0.259$). This contrasts with existing literature that often relates economic openness with improved well-being through increased investment, access to goods, technology transfer, and job creation (Mukherjee & Krieckhaus, 2012; Rodrik, 2018; Sirgy et al., 2004). The findings from this study suggest that the relationship between internationalisation and quality of life is not straightforward or universally applicable, particularly in economies with structural vulnerabilities.

One plausible explanation lies in the mediated nature of this relationship. The positive effects of internationalisation may depend on intermediary factors such as institutional quality, income distribution, and social investment (Adhikari, 2018; Stiglitz, 2012). In the Portuguese context – characterized by economic volatility, labour marked rigidity, and regional disparities – these mediating factors can constrain the extent to which international openness translates into tangible improvements in well-being. Furthermore, asymmetries in the distribution of benefits from international trade may increase social and economic inequalities, potentially offsetting gains in aggregate well-being.

Thus, although internationalisation is frequently highlighted as a driver of development (e.g., Haussmann, 2020; Rodrik, 2018), the lack of a statistically significant effect in this study emphasizes the importance of contextual and structural conditions. Rather decreasing the relevance of economic openness, these findings suggest that its influence on quality of life is potentially indirect, nonlinear, and contingent upon complementary policies such as social protection, employment generation, and equitable wealth distribution.

In this regard, it should be noted that, the unemployment rate showed a negative and statistically significant association with quality of life ($\beta = -0.433$; $p < 0.001$), which corroborates the literature that consistently links unemployment with decreased well-being, mental health deterioration, and reduced access to opportunities (McGillivray & Clarke, 2006; Braveman et al., 2011). This finding highlights the central role of employment in promoting well-being, especially in countries like Portugal that were heavily impacted by economic downturns such as the 2008 financial crisis and subsequent austerity measures.

Life expectancy at birth emerged as the most influential variable in the model ($\beta = 0.944$; $p < 0.001$), confirming its strong positive association with quality of life. This aligns with the literature that regards longevity as a core dimension of well-being and human development (Mukherjee & Krieckhaus, 2012). In Portugal, the access to a universal public healthcare system and improvements in public health over the past two decades have contributed significantly to longer life spans, thus enhancing overall well-being.

With regard to hypothesis 2, which suggested that higher levels of quality of life promote greater economic internationalisation, the results also fail to provide empirical support. In the final model, quality of life was not statistically significant ($\beta = -0.429$; $p = 0.128$), indicating that better living conditions do not directly translate into a higher degree of internationalisation. This is consistent with research suggesting that the relationship between well-being and internationalisation may be indirect and mediated by institutional factors such as governance quality, innovation capacity, and education systems (Mukherjee & Krieckhaus, 2012; Nye, 2004). The Portuguese case may exemplify this pattern, where improvements in quality of life do not necessarily lead to stronger export performance or higher foreign investment, especially in sectors not closely tied to international trade.

Interestingly, the unemployment rate was positively and significantly associated with the degree of internationalisation ($\beta = 0.397$; $p < 0.05$), a result that may appear counterintuitive. However, this can be explained by the dual nature of internationalisation: while openness facilitates growth in competitive sectors, it can also expose domestic industries to increased external competition, leading to job losses in less competitive segments (Adhikari, 2018). Consequently, in contexts marked by economic vulnerability, higher degrees of openness may be accompanied by higher unemployment, particularly during periods of economic adjustment or industrial restructuring.

The most substantial contributor to this model was GDP per capita, which showed a positive and highly significant effect on the degree of internationalisation ($\beta = 1.426$; $p < 0.001$). This aligns with the view that economic performance enhances international competitive, enabling countries to participate more actively in global trade and investment flows (Coe et al., 2008; Rodrik, 2018). Higher income levels support investments in infrastructure, technological innovation, and production upgrading – all of which facilitate export growth and foreign market entry. In the Portuguese contexts, improvements in GDP per capita have corresponded with integration into global value chains and expanded trade relationships.

Building upon the above, the rejection of both hypotheses does not invalidate the theoretical relevance of the bidirectional relationship between the degree of internationalisation and quality of life. Rather, it suggests that this relationship is likely mediated by multiple structural factors, including labour market dynamics, health outcomes, economic performance, and institutional capacity. These findings highlight the need for contextualized and multidimensional analyses when examining the intersections between internationalisation and quality of life. However, they should be interpreted with caution, particularly given the methodological limitations associated with using multiple regression in a time-series context. While the results reveal significant associations, they do not establish causal links between internationalisation and quality of life. This limitation may partly explain why the bidirectional hypotheses were not supported, as the interaction between these variables is likely dynamic and shaped by lagged and structural effects that the current model does not capture.

6.1. Theoretical and practical implications

This study presents several theoretical and practical implications. From a theoretical perspective, the findings contribute to the refinement of existing literature by questioning overly deterministic interpretations of the relationship between internationalisation and quality of life. While much of the literature emphasizes the positive effects of internationalisation on living standards (e.g., Rodrik, 2018; Sirgy et al., 2004), this study provides empirical evidence that such effects may not be automatic or uniform. Instead, outcomes appear to be highly contingent on national structural conditions, such as institutional capacity, health care quality, and labour market resilience. This finding echoes the warnings in more critical globalisation literature, which stresses the benefits from economic openness are often asymmetrically distributed (Adhikari, 2018).

The practical implications of these results are also multifaceted. First, they emphasize the need for firms and business leaders to recognize that international competitiveness does not guarantee improvements in social welfare. For instance, multinational enterprises expanding into small open economies like Portugal may benefit from improved market access but still operate in contexts where quality of life indicators remain stagnant or even deteriorate. Therefore, socially responsible business strategies, such as local investment in workforce development and fair labour practices, become crucial in aligning the internationalisation with broader social goals

Second, for policymakers, the findings underline the need for integrated and multidimensional development strategies. Economic polies aimed at enhancing internationalisation (e.g., trade liberalization or export promotion) must be accompanied by robust social policies that support healthcare, education, employment, and social protections. For example, policies that promote export growth in high-value sectors should be matched with investments in human capital to ensure that the population can benefit equitably from international integration. Similarly, public health infrastructure must be reinforced to sustain life expectancy gains that, as shown in this study, have a significant bearing on quality of life.

5.2. Limitations and future research

While this study provides valuable contributions, it is important to acknowledge its limitations, which open avenues for future research. First, the analysis is confined to the Portuguese context and is based on a relatively small number of observations, which is typical of time-series based on annual data. This limitation constrains the generalizability of the findings. Future research could address this by conducting cross-country comparative analyses and incorporating institutional variables to evaluate whether the observed patterns hold across different national settings.

A second key constraint concerns the use of composite proxies. Quality of life was measured via a broad well-being index that integrates ten distinct dimensions, including both material conditions of living and quality of life. While this multidimensional approach is comprehensive, it can hide more direct effects of internationalisation on specific aspects of quality of life. Similarly, the degree of openness used to measure the degree of internationalisation, calculated as the sum of exports and imports over GDP, captures economic integration but no other relevant dimensions such as FDI, technological exchange, or institutional integration. Future research should consider using more target indicators for internationalisation and quality of life to isolate more precise causal mechanisms.

Another major limitation involves the statistical technique employed. Multiple linear regression, while useful for identifying associations and controlling for confounding variables, is inherently limited in its capacity to capture temporal ordering and bidirectional causality. Because the variables are treated as contemporaneous or averaged over time, the technique cannot ascertain whether changes in the degree of internationalisation precede changes in quality of life or vice-versa. To overcome this, future studies should adopt longitudinal analytical frameworks, particularly cross-lagged panel model (CLPM). CLPM is a structural equation modelling technique designed to test reciprocal effects across time points. It includes both autoregressive paths (accounting for the stability of each variable over time) and cross-lagged paths (capturing how one variable at time t predicts changes in another at time $t+1$), allowing for more rigorous testing of directionality and potential causal precedence.

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