

Illicit Financial Flows and Happiness in Developing Economies: A Static Panel Data Analysis

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ABSTRACT

Illicit financial flows (IFFs) are increasingly cited as a constraint on social and institutional development, yet empirical evidence on their direct association with subjective well-being remains limited. Using an unbalanced panel of 86 developing countries from 2009 to 2018, this study examines whether IFFs exert a measurable influence on national happiness levels. Static estimators including pooled ordinary least squares, random effects, and fixed effects establish baseline relationships, while dynamic specifications incorporating a lagged dependent variable assess persistence in well-being outcomes. Across all static and dynamic models, IFFs do not have a statistically significant direct effect on happiness. The estimated coefficients are small and unstable in sign, indicating that short-term movements in illicit outflows do not translate into contemporaneous changes in subjective well-being. The dynamic specifications reveal substantial persistence in happiness, with large and significant lagged dependent variable coefficients, suggesting that well-being is partly shaped by prior happiness levels. By contrast, several structural determinants exhibit consistent relationships. Income demonstrates a positive association with happiness, while unemployment is negatively related to well-being across all estimators. Institutional quality is positively associated with happiness in the fixed effects model, suggesting that governance conditions contribute to higher life evaluations. Inflation exhibits a small negative association in the fixed effects specification. Income inequality, education, and internet penetration do not show significant effects across models. Overall, the findings suggest that IFFs may influence societal well-being through indirect or longer-term channels rather than immediate changes in happiness. The study contributes updated evidence from developing countries and highlights the importance of economic stability, employment conditions, and institutional performance in shaping well-being. Future research employing System GMM, mediation analysis, and non-linear specifications may better capture the channels through which IFFs affect happiness.

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1. Introduction

1.1 Beyond GDP: The Happiness Dimension of Development

Traditional development economics has predominantly focused on material indicators of progress, including GDP growth, poverty rates, and income levels. However, an emerging consensus recognizes that societal well-being encompasses dimensions beyond purely economic metrics. Happiness, or subjective well-being, reflects individuals' cognitive and emotional evaluations of their lives and has increasingly been recognized as a legitimate policy objective alongside economic growth (Stiglitz et al., 2009).

This paradigm shift is not merely academic. The Kingdom of Bhutan pioneered the concept of Gross National Happiness as an alternative development philosophy, while major international organizations including the OECD and United Nations have integrated well-being indicators into their monitoring frameworks. The UN's Sustainable Development Goals explicitly reference well-being in multiple targets, acknowledging that development success cannot be measured by economic indicators alone.

Within this context, illicit financial flows (IFFs), defined as cross-border movements of money that is illegally earned, transferred, or utilized, represent a threat not only to economic development but potentially to broader dimensions of societal welfare. IFFs drain developing countries of an estimated USD 835 billion annually (Global Financial Integrity, 2021), resources that could otherwise finance healthcare, education, infrastructure, and social protection systems that directly enhance quality of life.

1.2 Theoretical Linkages: How IFFs Might Affect Happiness

Multiple theoretical pathways suggest IFFs should negatively influence subjective well-being in affected societies. First, through the fiscal revenue channel, IFFs, particularly through trade misinvoicing and tax evasion, reduce government revenues available for public services. Since access to quality healthcare, education, and social safety nets strongly predicts life satisfaction (Helliwell et al., 2023), this fiscal drain should diminish happiness.

Second, the inequality channel posits that IFFs exacerbate income and wealth disparities. When economic elites can illegally shift profits abroad while ordinary citizens lack such opportunities, perceived and actual inequality increases. Research consistently shows that higher inequality correlates with lower average happiness, particularly when inequality reflects unfairness rather than meritocracy (Oishi et al., 2011).

Third, through the institutional trust channel, IFFs signal governance failures and corruption. When citizens perceive that public officials and corporations are siphoning wealth abroad with impunity, trust in institutions erodes. Institutional trust is a robust predictor of life satisfaction across cultures, with effects often exceeding those of income (Helliwell & Huang, 2008; Rothstein, 2010).

Fourth, the economic opportunity channel suggests that IFFs constrain domestic investment and employment growth by diverting capital that could create jobs and business opportunities. Unemployment and job insecurity are among the strongest negative predictors of individual happiness (Clark & Oswald, 1994), so this indirect effect could be substantial.

1.3 Empirical Gap and Research Contribution

Despite these theoretical linkages, empirical research directly examining the IFFs-happiness relationship remains remarkably scarce. Existing literature has established that corruption, a key driver of IFFs, negatively affects happiness (Li & An, 2020; Arvin & Lew, 2014). Studies have also documented relationships between governance quality, economic development, and subjective well-being. However, to our knowledge, no previous study has systematically examined whether IFFs themselves, operationalized through trade misinvoicing estimates, significantly affect national happiness levels when controlling for other determinants.

This gap is particularly striking given the prominence of IFFs in development policy debates. The United Nations' Sustainable Development Goal 16.4 explicitly targets reducing IFFs, yet we lack clear evidence on whether such flows actually harm the well-being outcomes that development ultimately seeks to improve.

This study addresses this gap by analyzing panel data from 86 developing countries over 2009-2018, examining whether variation in IFFs predicts variation in happiness after controlling for income, unemployment, inflation, inequality, institutional quality, education, and internet access. By employing

multiple static panel estimators and conducting rigorous specification tests, the analysis provides methodologically transparent evidence on this under-researched relationship.

1.4 Research Objective and Hypothesis

The primary objective is to investigate the impact of IFFs on subjective well-being in developing economies using static panel data methods. Based on the theoretical channels outlined above and the limited prior evidence on related constructs, the study tests the following hypothesis:

H₁: IFFs exert a negative and statistically significant impact on national happiness levels in developing countries, controlling for other determinants of subjective well-being.

The remainder of this paper is organized as follows. Section 2 reviews theoretical frameworks and empirical literature on happiness determinants and IFFs. Section 3 describes the data sources, variable measurement, and econometric methodology. Section 4 presents descriptive statistics, correlation analysis, specification tests, and regression results. Section 5 discusses findings and their implications. Section 6 concludes with limitations and recommendations for future research.

2. Literature Review

2.1.1 The Economics of Happiness

The systematic study of happiness in economics gained prominence through Richard Easterlin's (1974) pioneering work documenting the "Easterlin Paradox", the observation that rising national income does not necessarily translate into higher happiness levels over time. This paradox challenged conventional welfare economics' equation of utility with income and sparked decades of research on subjective well-being determinants.

Contemporary happiness research draws on multiple theoretical traditions. The hedonic perspective, rooted in utilitarian philosophy, defines happiness as the balance of positive over negative affect, the excess of pleasure over pain in daily life (Kahneman & Deaton, 2010). The evaluative perspective focuses on life satisfaction, individuals' cognitive assessments of how well their lives measure up to their aspirations and expectations (Diener et al., 1995). Most empirical work, including this study, employs evaluative measures based on the Cantril ladder scale, where respondents rate their current life on a ladder from 0 (worst possible life) to 10 (best possible life).

Scholars such as Argyle (1989), Diener (1984), Easterlin (1995), and Seligman (2002) have deepened our understanding of happiness by exploring individual well-being and the broader concept of flourishing. Seligman's perspective emphasizes positive emotions, engagement, and personal virtues as central to happiness. This comprehensive approach recognizes not only the significance of mental states and personal accomplishments but also fulfilling relationships in constituting genuine happiness.

Set-point theory (Brickman & Campbell, 1971) posits that individuals adapt to changed circumstances, returning to baseline happiness levels despite major life events. This theory predicts weak relationships between objective conditions and sustained happiness through the process of hedonic adaptation. However, substantial evidence now suggests that adaptation is incomplete for certain life domains, particularly unemployment, health problems, and chronic stressors (Lucas, 2007). According to Stutzer (2004), individuals adjust their expectations and consumption patterns in response to rising income. Frey and Stutzer (2000) further argue that the marginal utility of income diminishes over time, which contributes to a plateau in self-reported happiness.

Social comparison theory (Festinger, 1954) emphasizes relative rather than absolute standing. People evaluate their well-being partly by comparing themselves to reference groups, including peers, compatriots, or their own past situations. This framework explains why income effects on happiness are often modest; rising incomes benefit individuals only if they outpace others' income growth (Easterlin, 2001). Duesenberry (1949) and Pollak (1976) propose that individuals assess their well-being not in absolute terms but relative to others or to their own prior income. When aspirations rise faster than actual income, the net gain in happiness may be limited or even negative (Genicot & Ray, 2020; Hovi & Laamanen, 2021).

Alongside psychological factors, economic conditions significantly contribute to individual and mental well-being (Packard & Van Nguyen, 2014). Financial security and income equality underline the importance of economic stability in shaping overall mental well-being. When individuals experience financial security, it leads to fulfilment and contentment, while a lack of stability can cause distress and anxiety (Wolfe & Patel,

2021). These connections between economic conditions and mental health underscore the importance of a stable economy in fostering overall happiness (Diener & Seligman, 2004).

2.1.2 Capital Flight and Institutional Quality Theories

Capital flight theory, initially introduced by scholars such as Cuddington (1986), provides the primary framework for understanding IFFs' economic effects. The definition of capital flight has been a subject of considerable debate, with various scholars providing diverse perspectives (Cuddington, 1986; Dooley, 1986; Epstein, 2005; Williamson & Lessard, 1987; Yalta, 2009). However, for countries grappling with large current account deficits and external debt, the distinction becomes less important as any form of capital outflow worsens their financial challenges (Hermes et al., 2002).

The theory identifies how unrecorded capital outflows deplete domestic investment, reduce tax revenues, and signal poor governance. While originally developed to explain aggregate economic effects, the framework extends naturally to happiness considerations. Within this framework, the concept of 'Financial Secrecy' plays a pivotal role. Financial secrecy refers to the confidentiality and anonymity provided by certain jurisdictions, facilitating the illicit outflow of capital from one country to another (Cobham & Janský, 2017; Sharafutdinova & Lokshin, 2021). This secrecy serves as a magnet for corrupt officials, tax evaders, and other actors involved in IFFs, thereby contributing to economic leakages.

IFFs represent a specific form of capital flight driven by deliberate efforts to evade taxes, hide corruption proceeds, or shift profits to low-tax jurisdictions. Unlike capital flight motivated purely by return differentials or portfolio diversification, IFFs involve regulatory violations and often reflect systematic governance failures. Drawing upon Bhagwati's (1978) work, capital flight can be understood as a demand for illegal foreign exchange, primarily driven by traders falsifying trade documents to underinvoice exports and overinvoice imports. However, Schneider (2003) broadens this view, arguing that it would be reductive to attribute capital flight solely to illegal transactions by specific groups of traders. Other channels such as cash movements, smuggling of goods, corruption in arms deals, and even legal but ethically questionable tactics like evading tariffs and quotas play a significant role.

The theory brings to light the 'Macroeconomic Imbalance' that results from such outflows. Capital flight, often illicit in nature, drains resources that could otherwise be invested in productive sectors of the economy. This imbalance affects fiscal policies, exchange rates, and even monetary policies, creating an environment that is ripe for economic stagnation and vulnerability (Ndiaye, 2011; Schineller, 1997). The detrimental effects are particularly severe for developing countries where these illicit outflows represent a significant loss of potential investments in healthcare, education, and infrastructure, thus directly impacting both economic growth and societal happiness.

Institutional quality theory (North, 1990; Acemoglu & Robinson, 2012) emphasizes that inclusive, accountable institutions create environments where citizens can flourish. IFFs both reflect and perpetuate weak institutions, as they arise when governance failures create opportunities for illicit transactions while simultaneously undermining institutional capacity by depleting resources and fostering corruption. Capital Flight Theory provides invaluable insights into the enabling environment that allows IFFs to thrive. It elaborates on the economic conditions, such as lax regulations and financial secrecy, that make economies susceptible to large outflows of illicit capital. This results in reduced investments in crucial sectors, thereby hampering economic growth and potentially affecting societal well-being and happiness.

The state capture framework (Hellman et al., 2003) describes situations where powerful private actors shape laws and regulations to serve their interests. IFFs represent an outcome of state capture, where economic elites design tax systems and enforcement regimes that facilitate profit-shifting and wealth concealment. Citizens' awareness of such capture erodes trust and likely reduces happiness. This provides policymakers with a robust analytical framework for devising strategies aimed at curbing such outflows and strengthening economic resilience (Ashman et al., 2011; Pradhan & Hiremath, 2020).

The framework also contributes to a broader discussion on Global Financial Integrity, emphasizing the risks associated with financial secrecy and the need for more transparent regulations. This need is corroborated by data from Global Financial Integrity, which estimates illicit financial outflows from developing countries to average approximately USD 542 billion per year, with trade misinvoicing constituting close to 80% of this figure (Baker et al., 2014). The need for transparent regulations becomes even more critical when considering the work of Pastor (1990) and Kant (2002), who argue that capital should naturally flow toward capital-

scarce countries. Deviations from this natural flow may indicate underlying governance challenges that could be worsened by IFFs and secrecy jurisdictions.

2.1.3 Resource Curse Theory

Resource curse theory (Auty, 1993) offers additional insights into why IFFs might be particularly harmful in The Resource Curse theory, initially posited by Auty (1993), serves as a seminal framework for scholars and policymakers interested in exploring the counterintuitive dynamics between natural resource abundance and economic underperformance. The theory suggests that nations with abundant natural resources are paradoxically more susceptible to adverse outcomes such as economic stagnation, political corruption, and social disarray.

Within the scope of this theory, the concept of Rent-Seeking Behavior emerges as a driving force behind these negative outcomes. This behavior is often exhibited by various domestic and international actors who, enticed by the lucrative prospects of resource exploitation, engage in unethical and illegal activities. These activities give rise to IFFs, particularly as these actors engage in the extraction and sale of natural resources under the guise of corruption (Kolstad & Søreide, 2009). Such IFFs directly contribute to economic underperformance, as these outflows represent lost opportunities for investment in vital sectors like healthcare, education, and infrastructure. Consequently, this lack of investment hinders economic growth by reducing the resources available for development projects, and can negatively impact societal well-being and happiness by decreasing the quality and availability of essential services that enhance life satisfaction.

Simultaneously, the theory addresses the notion of Institutional Weakening. An undue emphasis on resource exploitation diverts economic, political, and social capital from other crucial sectors, thereby weakening institutional structures. This weakening creates an environment conducive to corruption and the facilitation of IFFs (Akeliwira, 2023; Dolve & Mullard, 2019; Herkenrath, 2014). This process can manifest through specific mechanisms such as the misuse of natural resources as collateral for unsustainable debt or through corrupt contracts that lead to capital flight. Such institutional degradation is not merely a byproduct of resource exploitation but serves as a fertile ground for corruption and associated illicit financial activities. The resulting instability and corruption further depress economic growth by undermining effective governance and policy implementation, and lower societal happiness by eroding public trust and reducing the efficacy of public services.

In resource-rich developing countries, valuable commodities like minerals, oil, and gas create opportunities for both public sector corruption and private sector profit-shifting through trade mispricing. Export underinvoicing allows extractive firms to hide revenues from tax authorities, while import overinvoicing facilitates capital flight. These practices deprive governments of revenues needed for public investment while simultaneously undermining institutional quality.

The Resource Curse theory offers invaluable insights into the mediating role of corruption between IFFs and economic stagnation. For instance, it elucidates the situational factors that make countries abundant in natural resources more susceptible to corruption and illegal financial activities. This theoretical grounding equips policymakers with the empirical basis required for crafting targeted interventions aimed at reducing IFFs (Ayodeji, 2018; Williams, 2011). For example, policy measures could include stringent regulations on resource extraction contracts, increased transparency in resource-related financial transactions, and the strengthening of anti-corruption institutions. By addressing corruption, these policies can help redirect resources towards productive investments, thereby fostering economic growth and improving societal well-being and happiness.

Moreover, this theory contributes to a broader discourse on global economic governance and public policy. It serves as a cautionary framework, highlighting the risks of focusing solely on natural resource exploitation. Grasping the elements outlined by this theory provides a basis for formulating policies that deter corruption, improve investment efficiencies, diversify the export structure, and encourage sustainable economic and societal growth (Henry, 2019). These policies can help mitigate the negative impact of IFFs on both economic growth and societal well-being, ultimately enhancing the happiness of the population by promoting fair and equitable development.

The resource curse framework thus predicts that IFFs should be particularly detrimental to happiness in resource-dependent economies, where governance challenges and rent-seeking opportunities are most pronounced. Natural resource wealth often generates rent-seeking, corruption, and capital flight while

weakening institutions. These dynamics create volatile economies with poor governance, conditions associated with low happiness despite apparent wealth.

2.2 Empirical Evidence on Happiness Determinants

A substantial literature has identified robust correlates of subjective well-being across countries and over time. Income consistently predicts higher happiness, though with diminishing marginal effects (Stevenson & Wolfers, 2013). The relationship is stronger in poorer countries where additional income addresses basic needs. Cross-country evidence suggests happiness rises with log income, implying constant elasticity. Foundational studies by Diener et al. (1995) and more recent work by Stevenson and Wolfers (2013) show that higher income levels and GDP per capita are significantly associated with greater life satisfaction across countries and time periods. Income enables consumption, facilitates access to healthcare and education, and increases individual autonomy, all of which contribute to higher subjective well-being.

Employment status powerfully affects well-being, with unemployment causing sustained happiness losses exceeding those predicted by income loss alone (Clark & Oswald, 1994; Winkelmann & Winkelmann, 1998). Psychological costs, including loss of identity, structure, and social connections, compound material hardship. Foundational studies by Clark and Oswald (1994) demonstrate that the absence of employment contributes to psychological distress through multiple channels, including the loss of income, social identity, and daily structure. Further research by Winkelmann and Richter et al. (2020) and Gedikli et al. (2023) reinforce these findings, highlighting that the unemployed consistently report lower levels of happiness compared to the employed.

Health is among the strongest happiness predictors, with both physical and mental health showing robust associations with life satisfaction (Graham & Pettinato, 2002). The causal arrow likely runs in both directions, with health affecting happiness and happiness influencing health behaviors and outcomes.

Social relationships consistently predict happiness across cultures. Marriage, family ties, and friendship networks provide emotional support, practical assistance, and sense of belonging that enhance well-being (Helliwell & Putnam, 2004). Social isolation ranks among the strongest happiness depressors. The social capital theory suggests that social cohesion and trust are also significant contributors to collective happiness (Klein, 2013).

Institutional quality and governance increasingly feature in happiness research. Democracies report higher average happiness than autocracies, even controlling for income (Frey & Stutzer, 2000). The quality of government, measured by rule of law, corruption control, and bureaucratic effectiveness, predicts life satisfaction independent of economic development (Ott, 2010; Helliwell et al., 2021). Countries with strong institutions tend to exhibit higher levels of happiness due to better public service delivery, stronger civic engagement, and reduced corruption (W. Chang, 2009; Chung & Im, 2022; Salameh et al., 2022).

Income inequality shows mixed associations with happiness. Some studies report negative correlations, particularly in societies where inequality is perceived as unfair (Alesina et al., 2004). However, in mobile societies where inequality signals opportunity, effects may be neutral or even positive (Senik, 2008). Alesina et al. (2004) find that attitudes toward inequality vary significantly across regions, influenced by perceived social mobility and political ideology.

Education generally correlates positively with happiness, operating through multiple channels: higher income, better health, expanded opportunities, and cognitive skills for problem-solving (Layard, 2011). However, effects vary by context, with some studies reporting null or negative associations when labor markets cannot absorb educated workers (Ho, 2011). Hinks and Gruen (2007), and Oswald and Blanchflower (2011) find that education has a statistically significant positive impact on happiness, either directly or indirectly.

2.3 The IFFs-Happiness Nexus: Limited Prior Evidence

Direct empirical evidence linking IFFs to happiness is strikingly scarce. A few studies have examined related constructs. Li and An (2020) find that corruption, a major driver of IFFs, significantly reduces happiness across countries, with effects persisting after controlling for income and institutions. Arvin and Lew (2014) report that corruption's negative happiness effects are stronger in poorer countries, suggesting that governance failures particularly harm well-being where resources are already scarce.

Research on institutional quality provides indirect evidence. Ott (2010) demonstrates that government effectiveness, encompassing corruption control and regulatory quality, strongly predicts national happiness levels, with effects comparable to those of income. Helliwell and Huang (2008) show that institutional trust mediates relationships between objective governance indicators and subjective well-being.

Studies of capital flight offer additional insights. Ndikumana and Boyce (2021) document massive resource drains from African countries, with cumulative losses exceeding external debt stocks. While not directly measuring happiness, they describe deteriorating public services and infrastructure that plausibly reduce quality of life. Herkenrath (2014) links IFFs to worse development indicators including health and education outcomes, which themselves predict happiness. In the context of IFFs, the erosion of social capital becomes a significant concern, directly challenging the notion that factors beyond economic metrics, such as social cohesion and trust, significantly contribute to happiness. Empirical evidence corroborates that high levels of IFFs are associated with decreased social trust (Kurebwa, 2021; Reuter, 2017; Rothstein, 2016).

The resource curse literature (Auty, 1993) suggests mechanisms through which IFFs might harm well-being in resource-rich countries. Natural resource wealth often generates rent-seeking, corruption, and capital flight while weakening institutions. These dynamics create volatile economies with poor governance, conditions associated with low happiness despite apparent wealth.

2.4 Hypothesized Relationships

Based on theoretical considerations and related empirical evidence, this study hypothesizes that IFFs negatively affect happiness through multiple channels. The fiscal channel predicts that IFFs reduce public service quality by depleting government revenues. The inequality channel suggests IFFs exacerbate disparities, reducing happiness particularly in societies where fairness norms are strong. The institutional trust channel posits that IFFs signal and perpetuates governance failures that erode confidence in public institutions. The economic opportunity channel implies that IFFs constrain domestic investment and employment growth, indirectly harming well-being.

However, alternative scenarios are possible. If IFFs primarily reflect wealth concealment by elites rather than affecting the broader population, average happiness might show little relationship with IFF levels. If most variation in IFFs occurs across countries rather than over time within countries, fixed effects models focusing on temporal variation might fail to detect significant associations. If IFFs' effects operate with long lags or through complex indirect pathways, contemporaneous specifications might miss important relationships.

3. Method

3.1 Data and Sample Selection

This study employs an unbalanced panel of 86 developing countries observed between 2009 and 2018. The sample is determined by overlapping data availability for all key variables, in particular IFFs from Global Financial Integrity (GFI) and happiness scores from the World Happiness Report. The original GFI dataset covers 134 developing economies, but countries with substantial missing observations on happiness or the control variables are excluded.

Descriptive statistics are based on all available observations for each variable (for example, 865 observations for happiness, 880 for income; see Table 1). The main static panel regressions are estimated on 777 country–year observations with complete data for $\ln\text{HPY}$, $\ln\text{IFFs}$, and all controls. Dynamic specifications that include the lagged dependent variable use 695 observations because one year is lost when constructing $\ln\text{HPY}_{(t-1)}$.

The 2009 – 2018 window is chosen for two reasons. First, it corresponds to the most recent decade for which consistent trade-misinvoicing estimates are available from GFI. Second, it captures the post-global financial crisis period, during which many developing countries underwent institutional and macroeconomic changes that are relevant for both IFFs and subjective well-being.

The 86 countries span the major developing regions: Sub-Saharan Africa, Developing Asia, Latin America and the Caribbean, the Middle East and North Africa, and Developing Europe. This geographical coverage enhances external validity while introducing heterogeneity that is addressed econometrically through country and year fixed effects.

3.2 Variable Definitions and Measurement

3.2.1 Dependent Variable

The dependent variable is happiness, measured by the Cantril ladder from the World Happiness Report. Respondents evaluate their current life on a scale from 0 (worst possible life) to 10 (best possible life). Country-level scores are population-weighted averages from the Gallup World Poll.

The Cantril ladder captures evaluative well-being and has been shown to exhibit good reliability and cross-cultural validity. For econometric purposes, the variable is transformed using the natural logarithm, denoted $\ln\text{HPY}$. This transformation reduces skewness, mitigates heteroskedasticity, and allows coefficients to be interpreted as semi-elasticities, that is, percentage changes in $\ln\text{HPY}$ associated with percentage changes in the regressors.

3.2.2 Independent Variable of Interest

The main explanatory variable is IFFs, measured using trade-misinvoicing estimates from Global Financial Integrity (2021). GFI identifies systematic discrepancies between the export values reported by country i to partner j and the corresponding import values reported by j from i , after adjustments for legitimate factors such as cost-insurance-freight margins, timing differences, and re-exports. Persistent unexplained gaps are interpreted as evidence of intentional misinvoicing designed to move funds illicitly across borders.

IFFs are expressed in current US dollars and converted to natural logarithms, denoted $\ln\text{IFFs}$. Trade misinvoicing does not capture all channels of illicit flows (such as cash smuggling or informal transfer systems), but it represents the dominant and most systematically measurable component for cross-country analysis.

3.2.3 Control Variables

The empirical specification incorporates a set of control variables commonly employed in the happiness and development literature. Income is measured using GDP per capita in constant 2015 USD, capturing material living standards that consistently emerge as a central determinant of subjective well-being. The variable is expressed in natural logarithms to reflect diminishing marginal returns to income. Labour market conditions are controlled through the unemployment rate, expressed as the logarithm of the percentage of the labour force without work, recognising the substantial psychological and social costs associated with joblessness.

Macroeconomic stability is accounted for through the inflation variable, measured as the annual percentage change in the consumer price index. Both high and volatile inflation may reduce life satisfaction by eroding purchasing power and increasing uncertainty. Income inequality is represented by the Gini coefficient, transformed into logarithmic form for interpretability. This measure reflects distributional outcomes that may influence perceptions of fairness and relative deprivation, which in turn affect well-being.

Institutional quality is captured through the government effectiveness index from the Worldwide Governance Indicators, which reflects the quality of public services, bureaucratic competence, and policy credibility. Since the index includes negative values, we follow the transformation approach of Busse and Hefeker (2007) $y = \ln(x + \sqrt{x^2 + 1})$. Human capital is proxied by mean years of schooling for adults aged 25 and above, sourced from the Human Development Report. Education plays a critical role in shaping cognitive skills, labour market outcomes, and life opportunities, all of which contribute to well-being.

Technological capability is represented by the percentage of individuals using the internet. Digital connectivity provides access to information, online services, and social networks that may influence well-being outcomes. The variable is expressed in natural logarithms to stabilise variance and capture proportional rather than absolute changes. Collectively, these controls ensure that the estimated relationship between IFFs and happiness is not confounded by key economic, institutional, and social determinants widely recognised in the literature.

Variable Name	Brief Description	Measurement / Transformation	Sources of Data
Happiness	Measures subjective well-being based on national happiness scores.	Natural log of happiness index.	World Happiness Report
Illicit Financial Flows	Unrecorded outflows from illegal or hidden transactions and trade mispricing.	Natural log of IFFs based on value-gap methodology.	Global Financial Integrity; UN Comtrade; IMF
Income	GDP per capita in constant 2015	Natural log of GDP per	World Development

Variable Name	Brief Description	Measurement / Transformation	Sources of Data
	USD reflecting material living standards.	capita.	Indicators
Unemployment	Percentage of labour force unemployed. Reflects labour market stress.	Natural log of unemployment rate.	World Development Indicators; International Labour Organization
Inflation	Annual percentage change in consumer prices affecting purchasing power.	$\ln(x + \sqrt{(x^2 + 1)})$ transformation.	World Development Indicators
Income Inequality	Gini coefficient capturing income distribution across population groups.	Natural log of Gini coefficient.	Human Development Report
Institutional Quality	Government effectiveness representing service quality and policy credibility.	$\ln(x + \sqrt{(x^2 + 1)})$ transformation.	Worldwide Governance Indicators
Education	Mean years of schooling for adults aged 25+. Reflects human capital development.	Natural log of mean years of schooling.	Human Development Report
Internet Use	Percentage of population using the internet; indicator of technological capability.	Natural log of internet users percentage.	World Development Indicators; International Telecommunication Union

3.3 Empirical Model Specification

The baseline empirical model follows the form established in happiness economics (Blanchflower & Oswald, 2000; Welsch and Bonn, 2008; Kuzu et al. 2019):

$$\ln Happiness_{it} = \alpha + \beta_1 \ln IFFS_{it} + \beta_2 \ln Unemp_{it} + \beta_3 \ln Income_{it} + \beta_4 \ln Infla_{it} + \beta_5 \ln Inequal_{it} + \beta_6 \ln Inst_{it} + \beta_7 \ln Edu_{it} + \beta_8 \ln Internet_{it} + v_i + \varepsilon_{it}$$

where:

i indexes countries (i = 1, ..., 86)

t indexes years (t = 2009, ..., 2018)

μ_i represents country-specific fixed effects

λ_t represents year fixed effects

ε_{it} is the idiosyncratic error term

This two-way fixed effects structure controls for unobserved country characteristics (such as culture, geography, or historical institutions) and for shocks common to all countries in a given year (such as global crises), ensuring that identification is based on within-country changes over time.

3.4 Estimation Strategy

The study employs three static panel estimators, each with distinct assumptions:

pooled OLS. All country–year observations are treated as independent, ignoring unobserved country heterogeneity. Although likely biased due to omitted country effects, pooled OLS serves as a useful benchmark and captures both between- and within-country variation.

Fixed Effects Model (FEM). Country-specific effects μ_i are treated as parameters to be estimated and allowed to correlate with the regressors. FEM differences out all time-invariant country characteristics and focuses on within-country variation, which is central to the interpretation of the main results.

Random Effects Model (REM). Country effects are assumed to be uncorrelated with the regressors and to follow a random distribution. Under this assumption, REM is more efficient than FEM because it exploits both within- and between-country variation.

To complement the static analysis, a simple dynamic extension adds the lagged dependent variable $\ln\text{HPY}_{(t-1)}$ to the model and estimates it using pooled OLS and FEM. These dynamic specifications are interpreted as robustness checks and as a preview of more advanced dynamic panel methods rather than as the primary identification strategy.

All models are estimated with robust standard errors clustered at the country level to account for heteroskedasticity and serial correlation within countries over time.

3.5 Model Selection and Specification Tests

Formal specification tests guide the choice among pooled OLS, FEM, and REM:

The poolability F-test assesses whether country effects are jointly zero. Rejection indicates that pooling across countries without accounting for unobserved heterogeneity is inappropriate.

The Breusch–Pagan Lagrange Multiplier (LM) test evaluates whether the variance of the country-specific effects differs from zero. Rejection supports the use of a random-effects model over simple pooled OLS.

The Hausman test compares FEM and REM under the null hypothesis that country effects are uncorrelated with the regressors. Rejection favours FEM as the consistent estimator. In addition to the standard Hausman test, a robust Hausman–Mundlak variant is implemented by augmenting the REM with country-specific means of the time-varying regressors.

The test results, reported in Section 4.3, strongly support the fixed effects specification as the preferred estimator for inference in this study.

3.6 Justification for Static Panel Approach

The analysis centres on static two-way fixed effects models, supplemented by simple dynamic specifications with a lagged dependent variable. More sophisticated dynamic panel estimators, such as Arellano–Bond or System GMM, are not implemented for two reasons. First, the time dimension of the panel is relatively short, and the primary objective is to establish baseline cross-country evidence on the relationship between IFFs and happiness using widely understood methods. Second, the available instruments for IFFs and other regressors are limited, raising concerns about instrument proliferation and weak identification in GMM frameworks.

The limitations of the static approach, especially in the presence of persistence in happiness, are acknowledged explicitly in the discussion and conclusion sections, where dynamic GMM-based extensions are proposed as a priority for future research.

4. Results and Discussion

4.1 Descriptive Statistics

Table 1 reports the descriptive statistics for all variables included in the study. Happiness ($\ln\text{HPY}$) ranges from 0.979 to 2.030, with a mean of 1.595, indicating meaningful variation in subjective well-being across developing economies. IFFs ($\ln\text{IFFs}$) display moderate dispersion, with a mean of 2.963 and a standard deviation of 0.203, suggesting variation in the scale of illicit activities across countries in the sample.

Table 1: Descriptive Statistics

Variables	Observations	Mean	Sta. Dev.	Minimum	Maximum
$\ln\text{HPY}$	865	1.595	0.196	0.979	2.030
$\ln\text{IFFs}$	853	2.963	0.203	1.589	4.146
$\ln\text{ICM}$	880	7.977	1.062	5.582	10.687
$\ln\text{UEM}$	880	1.704	0.861	-2.040	3.501
$\ln\text{INF}$	870	1.983	1.073	-3.519	4.774
$\ln\text{INEQ}$	824	3.698	0.185	3.199	4.170
$\ln\text{INST}$	880	-0.313	0.536	-1.560	1.195
$\ln\text{EDU}$	880	1.903	0.504	0.066	2.571
$\ln\text{INT}$	869	3.057	1.119	-1.514	4.590

Income ($\ln\text{ICM}$) shows the widest spread in the dataset, ranging from 5.582 to 10.687. This distribution reflects the substantial differences in economic development, covering low-income to upper-middle-income economies. Unemployment ($\ln\text{UEM}$) records values from negative observations to 3.501, indicating that

labour market performance varies considerably across the region. Inflation (lnINFL) also shows broad variation, with values spanning from negative 3.519 to 4.774, consistent with the presence of both periods of price stability and episodes of volatility.

Inequality (lnINEQ) exhibits a relatively narrower distribution, with a mean of 3.698 and a standard deviation of 0.185. Although the range is more contained, the data still reflect meaningful cross-country differences in income distribution. Institutional quality (lnINST) ranges from negative 1.560 to 1.195, showing that governance conditions differ significantly across countries. Education (lnEDU) displays variation from 0.066 to 2.571, reflecting differences in educational attainment and access. Internet penetration (lnINT) also varies widely, from negative 1.514 to 4.590, indicating diverse levels of digital connectivity. Overall, the observed variation across all variables supports the suitability of the dataset for panel regression analysis.

4.2 Correlation Analysis

Table 2 presents pairwise correlations among key variables, offering preliminary insights before multivariate analysis.

Table 2: Correlation Matrix

	lnHPY	lnIFFs	lnICM	lnUEM	lnINF	lnINEQ	lnINST	lnEDU	lnINT
lnHPY	1.000								
lnIFFs	-0.307*	1.000							
lnICM	0.716*	-0.304*	1.000						
lnUEM	0.001	-0.214*	0.313*	1.000					
lnINF	-0.063	0.089*	-0.120*	-0.002	1.000				
lnINEQ	-0.131*	0.007	-0.157*	0.124*	0.030	1.000			
lnINST	0.509*	-0.167*	0.739*	0.251*	-0.175*	-0.058	1.000		
lnEDU	0.512*	-0.260*	0.762*	0.352*	0.013	-0.190*	0.544*	1.000	
lnINT	0.596*	-0.309*	0.820*	0.378*	-0.142*	-0.235*	0.601*	0.761*	1.000

Table 2 reports the pairwise correlations among the variables. The correlation between IFFs and happiness is negative -0.307 and statistically significant, indicating that countries with higher IFFs tend to report lower levels of subjective well-being. This relationship provides initial support for the theoretical expectation that illicit financial activities undermine social and economic conditions relevant to happiness. Whether this association remains once country effects and additional controls are introduced will be assessed in the multivariate analysis.

Income shows the strongest positive correlation with happiness 0.716, consistent with the established view that higher income levels are closely associated with improved well-being in developing economies. Income also correlates negatively with IFFs -0.304, reflecting the tendency for countries with elevated illicit outflows to record weaker economic performance.

Unemployment exhibits a near-zero correlation with happiness 0.001, suggesting little direct association at the bivariate level. Inflation shows a small negative correlation with happiness -0.063, although the magnitude is limited. Inequality displays a modest negative relationship with happiness -0.131, supporting theories that disparities in income distribution may erode societal well-being.

Institutional quality 0.509, education 0.512, and internet penetration 0.596 each show meaningful positive correlations with happiness, indicating that improvements in governance, human capital, and digital access coincide with higher well-being. These variables also correlate negatively with IFFs, implying that stronger institutions and human capital formation are associated with lower illicit activity.

The substantial correlations among income, education, institutional quality, and internet penetration suggest shared structural characteristics across developing economies. While these patterns raise the possibility of multicollinearity, subsequent diagnostics in the regression framework confirm that collinearity levels remain within acceptable bounds.

4.3 Model Selection and Specification Test

Before presenting regression results, formal specification tests determine the most appropriate estimator. Table 3 summarizes key diagnostics.

Test	Statistics	P-Value	Implication
Poolability F-test	13.97	<0.001***	Reject pooling; use panel methods
Breusch-Pagan LM Test	849.65	<0.001***	REM preferred over pooled OLS
Hausman Test	47.30	<0.001***	FEM preferred over REM
Robust Hausman-Mundlak	52.45	<0.001***	Confirms FEM specification

Note: ***, **, * denote significance at 1%, 5%, and 10% levels.

The poolability F-test strongly rejects the null hypothesis that country effects are jointly zero ($F = 13.97$, $p < 0.001$), indicating that simple pooled OLS ignoring panel structure would yield inconsistent estimates. Panel data methods are clearly necessary.

The Breusch-Pagan LM test also decisively rejects the null hypothesis of no random effects ($\chi^2 = 849.65$, $p < 0.001$), confirming that country-specific heterogeneity is substantial and must be addressed.

Critically, the Hausman test rejects the null hypothesis that country effects are uncorrelated with regressors ($\chi^2 = 47.30$, $p < 0.001$), favoring Fixed Effects over Random Effects. This finding is corroborated by the robust Hausman-Mundlak test ($\chi^2 = 52.45$, $p < 0.001$), which is less sensitive to violations of standard Hausman assumptions. These results indicate that unobserved country characteristics are correlated with the regressors, thereby validating the Fixed Effects estimator as the consistent specification for this study.

Based on these diagnostic results, the Fixed Effects Model is the preferred specification for inference. Nevertheless, results from all three estimators are reported for transparency and robustness assessment.

4.4 Main Regression Results

Tables 3 present regression results using all three panel estimators. The additionally reports robust standard errors clustered by country, which is the preferred specification for inference given potential heteroskedasticity and within-country error correlation.

Table 3: Impact of IFFs on Happiness - Panel Estimation with Robust Standard Errors

	Standard Error			Robust Standard Errors		
	Pooled OLS	FEM	REM	Pooled OLS	FEM	REM
lnIFFs	-0.126*** (0.024)	0.016 (0.022)	-0.009 (0.021)	-0.126*** (0.046)	0.016 (0.028)	-0.009 (0.026)
lnICM	0.115*** (0.010)	0.262*** (0.052)	0.126*** (0.017)	0.115*** (0.020)	0.262*** (0.067)	0.126*** (0.021)
lnUEM	-0.074*** (0.006)	-0.043*** (0.014)	-0.050*** (0.010)	-0.074*** (0.011)	-0.043* (0.025)	-0.050*** (0.015)
lnINF	0.011** (0.004)	-0.009** (0.004)	-0.007* (0.004)	0.011 (0.007)	-0.009* (0.005)	-0.007 (0.005)
lnINEQ	0.069*** (0.026)	0.188 (0.154)	0.021 (0.054)	0.069 (0.048)	0.188 (0.305)	0.021 (0.072)
lnINST	-0.011 (0.012)	0.062** (0.026)	0.021 (0.020)	-0.011 (0.023)	0.062** (0.031)	0.021 (0.023)
lnEDU	-0.035** (0.015)	0.202*** (0.070)	0.020 (0.030)	-0.035 (0.031)	0.202 (0.135)	0.020 (0.033)
lnINT	0.058*** (0.011)	-0.008 (0.012)	0.006 (0.011)	0.058*** (0.021)	-0.008 (0.024)	0.006 (0.020)
Constant	0.852*** (0.143)	-1.437* (0.781)	0.627** (0.251)	0.852*** (0.289)	-1.437 (1.322)	0.627* (0.325)
Observations	777	777	777	777	777	777
R-Squared	0.622	0.094	0.578	0.622	0.094	0.578
Adjusted R-Squared	0.613					
F-Test (Year Dummies)	3.51***	3.04***	23.83***	21.71***	1.28	20.27**
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Poolability F-Test		13.97***				
BP LM Test			849.65***			
Hausman Test		47.30***				
Robust Hausman - Mundlak			52.45***			

Note: Robust standard errors clustered by country in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels. All models include year fixed effects.

4.4.1 Main Finding: IFFs and Happiness

Table 3 shows that the estimated impact of IFFs on happiness is sensitive to the chosen estimator. In the preferred fixed effects specification with robust standard errors, the coefficient on $\ln\text{IFFs}$ is small and statistically insignificant (0.016, robust SE: 0.028), indicating that within-country changes in IFFs over time do not exert a detectable effect on happiness once time-invariant country characteristics are controlled. This result suggests that short-run fluctuations in IFFs are not systematically associated with changes in subjective well-being.

By contrast, the pooled OLS estimate yields a negative and highly significant coefficient of -0.126^{***} (robust SE: 0.046). This estimate is consistent with the descriptive evidence that countries with higher levels of IFFs tend to report lower happiness. However, because pooled OLS does not control for unobserved country-specific factors, the magnitude and significance of this coefficient are likely influenced by omitted heterogeneity. The random effects model produces an insignificant coefficient of -0.009 (robust SE: 0.026), which is closer to the FE estimate than to the pooled OLS result, reinforcing the view that the strong negative association in pooled OLS is largely driven by between-country differences.

Taken together, these findings imply that countries with persistently higher IFFs tend to exhibit lower average happiness in cross-sectional comparisons, but changes in IFFs within a given country do not translate into proportional changes in happiness over time. The fixed effects estimates therefore provide limited support for a direct causal effect of IFFs on subjective well-being, and they highlight the importance of distinguishing between cross-sectional correlations and within-country dynamics.

4.4.2 Control Variables: Robust Findings

Income ($\ln\text{ICM}$). Income remains the strongest and most consistent predictor across all specifications. The fixed effects coefficient of 0.262 (robust SE: 0.067, $p < 0.01$) indicates that higher income levels are associated with meaningful improvements in happiness within countries over time. This result is consistent with the positive and highly significant estimates from pooled OLS (0.115, robust SE: 0.020, $p < 0.01$) and REM (0.126, robust SE: 0.021, $p < 0.01$). The stability of the coefficient across estimators reinforces the central role of income in shaping subjective well-being in developing economies.

Unemployment ($\ln\text{UEM}$). Unemployment exhibits negative and statistically significant effects in all three estimators. The fixed effects model yields a coefficient of -0.043 (robust SE: 0.025, $p < 0.10$), which is consistent in sign with the pooled OLS (-0.074 , robust SE: 0.011, $p < 0.01$) and REM (-0.050 , robust SE: 0.015, $p < 0.01$) estimates. These findings confirm that higher unemployment rates are systematically associated with lower happiness, in line with the literature that emphasises the social and psychological costs of joblessness.

Inflation ($\ln\text{INF}$). Inflation shows relatively small coefficients with limited statistical significance. In the fixed effects model, the coefficient is -0.009 (robust SE: 0.005, significant at the 10% level), while the REM estimate is similar in magnitude and remains statistically insignificant once robust errors are used. The pooled OLS estimate is positive but not statistically significant with clustered standard errors. Overall, these results suggest that the direct contemporaneous relationship between inflation and happiness is weak in this sample, possibly reflecting differences in inflation volatility and household adjustment mechanisms across countries.

Income inequality ($\ln\text{INEQ}$). Income inequality does not exhibit statistically significant effects in any specification. The fixed effects coefficient is 0.188 (robust SE: 0.305), and both pooled OLS and REM estimates are small and insignificant. The wide confidence intervals point to substantial heterogeneity across countries and indicate that aggregate inequality measures, such as the Gini-based index used here, may not capture the distributional aspects most relevant for subjective well-being in developing economies.

Institutional quality ($\ln\text{INST}$). Institutional quality demonstrates a positive and statistically significant association with happiness in the fixed effects model (0.062, robust SE: 0.031, $p < 0.05$). This suggests that within-country improvements in governance and institutional performance are linked to higher levels of subjective well-being. By contrast, the pooled OLS and REM estimates are statistically insignificant, which indicates that the fixed effects estimator is better able to capture meaningful within-country dynamics than

purely cross-sectional variation. This finding supports theoretical perspectives that emphasise the role of institutions in fostering trust, security, and effective public service delivery.

Education (lnEDU). Education shows a positive coefficient in the fixed effects model (0.202, robust SE: 0.135), although the estimate does not reach conventional significance levels. This pattern suggests that improvements in educational attainment may contribute to enhanced well-being, but the effect is likely gradual and mediated through broader human capital channels. The negative but statistically insignificant pooled OLS coefficient probably reflects cross-country differences in education systems and levels of development rather than a causal adverse effect of education on happiness.

Internet penetration (lnINT). Internet access has a limited role once country heterogeneity is controlled. The fixed effects coefficient is small and insignificant (-0.008 , robust SE: 0.024), as is the REM estimate. In contrast, pooled OLS yields a positive and statistically significant coefficient (0.058, robust SE: 0.021, $p < 0.01$), capturing the fact that more digitally connected countries tend to have higher average well-being. After accounting for unobserved country characteristics, however, increases in internet penetration do not appear to translate into measurable short-run gains in happiness. This may indicate that digital access by itself is insufficient without complementary investments in digital skills and productive usage.

4.5 Robustness and Alternative Interpretations

The contrast between the pooled OLS and FEM estimates for IFFs warrants careful interpretation. Pooled OLS exploits both between-country and within-country variation and shows a sizeable negative association between IFFs and happiness (coefficient -0.126 , $p < 0.01$). In the fixed effects model, which focuses exclusively on within-country variation, the coefficient is small and statistically insignificant (0.016, $p > 0.10$). This divergence suggests that the strong association in pooled OLS is mainly driven by structural differences across countries rather than by changes in IFFs over time within a given country.

For IFFs, pooled OLS indicates a strong negative between-country relationship (coefficient: -0.136 , $p < 0.01$), while FEM reveals no within-country relationship (coefficient: -0.002 , $p > 0.90$). This pattern has several possible interpretations:

1. **Spurious Cross-Sectional Correlation:** Countries with higher IFFs differ systematically in unobserved ways (governance culture, colonial history, social capital) that both enable illicit flows and independently reduce happiness. Once these fixed differences are controlled (via FEM), the IFFs-happiness association disappears.
2. **Insufficient Within-Country Variation:** If IFFs are highly persistent within countries over the 10-year window, most variation is cross-sectional. FEM, discarding between-country variation, lacks adequate identifying variation to detect true effects. Extending the time dimension or examining longer differences might reveal relationships.
3. **Long Lags and Indirect Effects:** IFFs might affect happiness with multi-year lags not captured in contemporaneous specifications. Effects might also operate indirectly through institutional degradation, investment reduction, or inequality increases (pathways requiring explicit mediation analysis to detect).
4. **Measurement Error Attenuation:** If trade misinvoicing estimates contain substantial error, and if this error is less correlated over time within countries than across countries, FEM estimates may suffer greater attenuation bias than pooled OLS, obscuring true relationships.

4.6 Static vs. Dynamic Specifications: A Preview

Table 4 provides a preliminary comparison between static and dynamic panel models, including a lagged dependent variable specification estimated via pooled OLS and FEM (note: proper dynamic panel estimation requires System GMM, not shown here but recommended for future research). The lagged happiness coefficient is large and highly significant (pooled OLS: 0.776, $p < 0.01$; FEM: 0.419, $p < 0.01$), confirming substantial persistence in subjective well-being. This strong autocorrelation has important implications: it suggests that happiness is partly determined by past happiness (via adaptation, habits, or stable personality traits), and that static models may inadequately capture adjustment dynamics.

	Static			Dynamic	
	Pooled OLS	FEM	REM	Pooled OLS	FEM
LnHPY _(t-1)	-	-	-	0.776*** (0.025)	0.419*** (0.065)

lnIFFs	-0.126*** (0.046)	0.016 (0.028)	-0.009 (0.026)	-0.014 (0.016)	0.013 (0.030)
lnICM	0.115*** (0.020)	0.262*** (0.067)	0.126*** (0.021)	0.021*** (0.006)	0.082 (0.056)
lnUEM	-0.074*** (0.011)	-0.043* (0.025)	-0.050*** (0.015)	-0.024*** (0.004)	-0.036* (0.021)
lnINF	0.011 (0.007)	-0.009* (0.005)	-0.007 (0.005)	-0.004 (0.003)	-0.008 (0.005)
lnINEQ	0.069 (0.048)	0.188 (0.305)	0.021 (0.072)	0.018 (0.014)	0.127 (0.210)
lnINST	-0.011 (0.023)	0.062** (0.031)	0.021 (0.023)	-0.004 (0.007)	0.030 (0.024)
lnEDU	-0.035 (0.031)	0.202 (0.135)	0.020 (0.033)	-0.009 (0.010)	0.168 (0.102)
lnINT	0.058*** (0.021)	-0.008 (0.024)	0.006 (0.020)	0.026*** (0.007)	0.015 (0.023)
Constant	0.852*** (0.289)	-1.437 (1.322)	0.627* (0.325)	0.159* (0.088)	-0.496 (0.936)
Observations	777	777	777	695	695
R-Squared	0.622	0.094	0.578	0.862	0.227

In the dynamic specifications, the IFFs coefficient remains small and insignificant in both pooled OLS (-0.014, $p > 0.10$) and FEM (0.013, $p > 0.10$), while income effects diminish substantially compared to static models but remain significant in pooled OLS (0.021, $p < 0.01$) and insignificant in FEM (0.082, $p > 0.10$). Unemployment retains its negative and statistically significant association with happiness across both dynamic specifications (pooled OLS: -0.024, $p < 0.01$; FEM: -0.036, $p < 0.10$). The large lagged dependent variable coefficient absorbs much variation previously attributed to other regressors, suggesting that short-run fluctuations in IFFs, income, and other factors may have limited immediate happiness effects.

This preliminary dynamic analysis underscores limitations of the static approach and motivates more sophisticated dynamic panel methods (Arellano-Bond, System GMM) as critical directions for future research.

4.7 Robustness and Alternative Interpretations

4.7.1 Why Might the Direct Effect Be Insignificant?

Several non-mutually-exclusive explanations warrant consideration:

Measurement Error: Trade misinvoicing estimates, while the best available, contain uncertainty arising from data quality issues, legitimate trade discrepancies, and the inherent difficulty of quantifying clandestine transactions. Classical measurement error in independent variables attenuates coefficients toward zero. If measurement error is substantial, true negative effects might be obscured.

Insufficient Temporal Variation: IFFs may be highly autocorrelated within countries, with most variation lying in cross-sectional differences rather than time-series changes. If institutional quality (a key IFF determinant) changes slowly, then a 10-year panel may lack adequate within-country variation for FEM to identify effects.

Indirect Effects Only: IFFs might primarily harm happiness indirectly through reduced public services, increased corruption, or lower investment (channels not automatically captured in reduced-form specifications). Direct contemporaneous effects could be negligible while cumulative indirect effects are substantial.

Nonlinear or Threshold Effects: The relationship might be nonlinear, manifesting only above certain IFF thresholds or below certain governance quality levels. The linear specification imposed here could mask such patterns. Interaction terms or threshold regression might reveal hidden patterns.

Reverse Causality: Low happiness might itself contribute to capital flight as dissatisfied elites and mobile workers move resources abroad. This reverse causality could offset negative causal effects of IFFs on happiness, yielding insignificant net coefficients. Instrumental variable approaches would be needed to separately identify causal directions.

Aggregate-Level Masking: If IFFs primarily affect specific population segments (elites engaging in capital flight) while leaving the median citizen unaffected, aggregate happiness measures might show little response. Distributional analysis examining happiness across income quintiles could reveal heterogeneous effects.

4.8 Policy and Practical Implications

Despite the null finding on IFFs in the preferred FEM specification, several policy-relevant insights emerge:

Income Growth Remains Central: The robust positive income-happiness relationship (coefficient: 0.262, $p < 0.01$) confirms that policies supporting sustainable economic growth benefit subjective well-being. However, the coefficient suggests diminishing returns (happiness grows more slowly than income), implying that growth alone cannot maximize well-being.

Institutional Quality Matters: The positive effect of institutional quality (coefficient: 0.062, $p < 0.05$) suggests that governance improvements directly enhance life satisfaction independent of income effects. Investments in bureaucratic capacity, corruption reduction, and rule of law may yield well-being dividends that complement those from economic growth.

Labor Market Stability: The negative unemployment coefficient (coefficient: -0.043, $p < 0.10$) underscores that job creation and employment stability contribute substantially to societal happiness. Active labor market policies, job training programs, and countercyclical employment support deserve priority.

IFFs Still Matter: The lack of significant direct effects in FEM should not be interpreted as evidence that IFFs are harmless. First, IFFs have numerous harmful consequences beyond happiness (fiscal revenue losses, inequality exacerbation, corruption facilitation, and criminality support). Second, methodological and measurement challenges suggest absence of evidence is not evidence of absence. Third, IFFs may harm well-being through indirect channels not captured in reduced-form specifications.

Therefore, continued efforts to combat IFFs through enhanced financial transparency, improved tax enforcement, international cooperation (via FATF, OECD BEPS), and strengthened anti-corruption measures remain justified on multiple grounds beyond direct happiness effects documented here.

5. Conclusion

This study examined the relationship between IFFs and subjective well-being using panel data from 86 developing countries over 2009 – 2018. Employing pooled OLS, Fixed Effects, and Random Effects models with robust standard errors, the analysis tested whether trade-related IFFs (as measured by trade misinvoicing estimates from Global Financial Integrity) significantly affect national happiness levels when controlling for income, unemployment, inflation, inequality, institutional quality, education, and internet access. Formal specification tests consistently favored the Fixed Effects specification as most appropriate.

The main finding from the preferred FEM model is that IFFs do not exhibit a statistically significant direct effect on happiness when examining within-country variation over time (coefficient: 0.016, robust SE: 0.028, $p > 0.10$). This null result contrasts sharply with pooled OLS, which shows a strong negative association (coefficient: -0.126, $p < 0.01$), suggesting that the apparent IFFs-happiness relationship largely reflects cross-country differences in governance and development levels rather than within-country causal effects.

Several control variables demonstrate robust associations with happiness. Income shows a strong positive effect (coefficient: 0.262, $p < 0.01$), confirming material well-being's central role. Institutional quality emerges as a significant predictor (coefficient: 0.062, $p < 0.05$), indicating that governance improvements enhance life satisfaction. Unemployment exhibits a negative association with happiness (coefficient: -0.043, $p < 0.10$), consistent with the established literature on the social and psychological costs of joblessness.

This study makes several contributions to happiness economics and the IFFs literature. First, it provides the first systematic cross-country analysis directly examining IFFs-happiness relationships, filling a notable gap despite IFFs' prominence in development policy debates. Second, the divergence between pooled OLS and FEM estimates illustrates how cross-sectional correlations can be spurious, driven by omitted country-specific factors rather than causal relationships. Third, by transparently reporting null findings alongside significant results, the study contributes to scientific integrity. Fourth, the significant institutional quality-happiness association provides support for governance theories and justifies public sector capacity-building investments on well-being grounds beyond traditional economic efficiency arguments.

Several important limitations constrain conclusions. Static panel methods cannot capture dynamic feedback effects between IFFs and happiness. Trade misinvoicing estimates contain non-trivial error due to data quality issues and the inherent difficulty of quantifying clandestine activities. The 10-year panel may be insufficient to observe IFFs' full happiness effects, particularly if impacts manifest through slow institutional degradation or long-term social capital erosion. The reduced-form specification does not explicitly model causal pathways through which IFFs might affect happiness. IFFs could operate indirectly through corruption, inequality, institutional trust, or public service quality (mechanisms requiring mediation analysis to detect). Despite controlling for country and year fixed effects, reverse causality or omitted time-varying confounders remain possible.

Future research should employ dynamic panel methods to account for happiness persistence and potential feedback effects. Explicitly modeling pathways through which IFFs affect happiness would illuminate mechanisms and allow indirect effect estimation. Examining whether IFFs effects vary by country characteristics could reveal important interactions. Extending analysis beyond 2018 would increase power and allow longer-term effect examination. Exploiting policy changes or quasi-random shocks generating exogenous IFF variation would strengthen causal inference.

IFFs represent a substantial challenge, draining developing countries of over USD 800 billion annually. However, this study's empirical analysis does not find statistically significant direct effects of IFFs on happiness when examining within-country variation over time. The divergence between strong negative cross-sectional associations and null within-country relationships suggests that apparent IFFs-happiness correlations largely reflect deeper governance and development disparities between countries rather than causal effects of IFF changes within countries.

Policymakers should not interpret the null IFFs coefficient as evidence that combating illicit flows is unimportant. IFFs have numerous harmful consequences beyond aggregate happiness effects: fiscal depletion, corruption facilitation, inequality exacerbation, and criminality support. Moreover, methodological challenges suggest more sophisticated analytical approaches may yet reveal significant effects operating through indirect channels or manifesting over longer horizons. The significant institutional quality-happiness relationship provides justification for governance capacity-building on well-being grounds. Future research employing dynamic panel methods, explicit mediation analysis, longer time series, and causal identification strategies will be essential to definitively assess whether and how IFFs affect subjective well-being. In the meantime, continued international cooperation to enhance financial transparency, strengthen tax enforcement, combat corruption, and close regulatory loopholes remains justified. While the precise quantitative happiness impact remains uncertain, the broader case for tackling IFFs as part of sustainable and inclusive development strategies is compelling.

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