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Bridging the Sustainable Development Funding Gap: A Crowdfunding Approach

Shadi Al Shebli, Ahmet Faruk Aysan, Ruslan Nagayev

Abstract: This research investigates the nuanced role of crowdfunding in bridging the Sustainable Development Goals (SDGs) funding gap. Employing panel data and quantile regression, we move beyond aggregate analysis to examine the heterogeneous impact of crowdfunding on poverty reduction, economic growth, renewable energy, energy intensity, and climate action across countries with varying income levels. Our findings, robust to a battery of econometric tests, reveal that crowdfunding's effectiveness is fundamentally contingent on development stage. While crowdfunding demonstrably contributes to poverty reduction in high-income countries and fosters economic growth in middle- and lower-income nations, it paradoxically associates with increased poverty in the poorest countries and impedes renewable energy adoption in middle-income economies. These starkly heterogeneous effects, often obscured by traditional analysis, underscore the imperative for tailored policy frameworks. Specifically, we argue that maximizing crowdfunding's potential for sustainable development necessitates a shift from universal prescriptions to context-specific interventions that address distributional challenges and promote sustainable investments.

Keywords: Crowdfunding, SDG, Blended Finance, Sustainable Development, Development Finance, Private Investment

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Introduction

The Sustainable Development Goals. (SDGs), adopted by all United Nations Member States in 2015, envision a world of prosperity, social equity, and environmental sustainability. Since the achievement of 17 Sustainable Development Goals (SDGs), by 2030, represent a collective commitment to address global challenges, a significant impediment to their realization in developing and under-developed countries, which is a formidable funding gap. Adequate financial resources are paramount for the successful implementation of the SDGs, and the existing gap poses a considerable challenge to the international community's ability to meet these targets.

This research delves into the potential use of crowdfunding as a viable and innovative mechanism for bridging the SDGs funding gap. Crowdfunding, a form of alternative finance, involves raising funds from a large number of individuals, typically through online platforms. The appeal of crowdfunding lies in its ability to mobilize resources from a diverse and widespread pool of contributors, thereby democratizing the funding process. This approach has gained traction across various sectors, and its application in the realm of sustainable development is increasingly recognized as a promising avenue. The main research question that this analysis seeks to address, is whether or not Crowdfunding is effective in helping a country achieve its SDGs, by funnelling in private investment which could potentially bridge the existing funding gap. But there is a secondary inquiry to be carried out, that is whether Crowdfunding affects all countries in the same manner! This research aims to address this question as well.

The SDGs, with their ambitious scope, require substantial financial investments. According to estimates by the United Nations Conference on Trade and Development (UNCTAD), bridging the SDGs funding gap requires an additional $2.5 trillion annually, with developing countries facing the bulk of this financial burden (UNCTAD, 2014). Traditional funding mechanisms, including official development assistance and public funds, have fallen short in meeting these financial demands. The urgency of addressing this gap is underscored by the time-sensitive nature of the SDGs, as the international community races against the 2030 deadline.

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Crowdfunding, which has evolved to be a dynamic and inclusive financing model, holds the potential to augment traditional funding streams for sustainable development. Research by Belleflamme, Lambert, and Schwienbacher (2014) highlights the scalability and flexibility of crowdfunding platforms, allowing projects of various sizes and types to attract private financial investments. Furthermore, the participatory nature of crowdfunding aligns with the principle of inclusivity embedded in the SDGs, fostering a sense of global collaboration in addressing shared challenges. There are several successful cases that demonstrate the effectiveness of crowdfunding in supporting sustainable development initiatives. For instance, the "Solar Roadways" project raised over $2.2 million through crowdfunding to develop solar-powered road panels, contributing to clean energy solutions (Solar Roadways, 2014). Such examples underscore the potential of crowdfunding to mobilize resources for projects aligned with SDGs, particularly in areas such as clean energy, poverty alleviation, and education.

While the promise of crowdfunding in bridging the SDGs funding gap is evident, one must acknowledge the challenges and concerns that are associated with it. Such as issues related to project accountability, transparency, fraud, and the potential for project fatigue among contributors which require careful consideration and effective remedies. Addressing these concerns necessitates a robust regulatory framework and strategic partnerships between governments, international organizations, and crowdfunding platforms. this research explores the role of crowdfunding as a catalyst for bridging the SDGs funding gap. By turning towards private investment, and leveraging the power of collective action and innovation, crowdfunding has the potential to democratize the financing of sustainable development projects, and to present a complementary approach to traditional funding mechanisms. As the global community strives to achieve the SDGs by 2030, understanding and harnessing the potential of crowdfunding becomes imperative for shaping a more sustainable and inclusive future.

Literature Review

The achievement of the Sustainable Development Goals (SDGs) requires substantial financial resources and, since traditional funding sources have fallen short, innovative financing mechanisms are needed if we aim to bridge the funding gap. Crowdfunding has gained attention as a potential pathway, enabling individuals and organizations to pool resources to fund initiatives that are aligned with the SDGs. This review of the literature aims to explore the possible role of crowdfunding in bridging the SDGs funding gap, examining its potential, challenges, and impact on sustainable development.

According to Belleflamme et al. (2014), crowdfunding platforms have emerged as a means to mobilize resources for sustainable development projects. They highlight the democratization of financing, where individuals can contribute to projects aligned with their values and aspirations. Additionally, Burtch et al. (2018) discuss the rise of crowdfunding for social causes and its potential to address societal challenges, including those related to the SDGs. They highlight the ability of crowdfunding to engage communities, foster innovation, and promote sustainable practices. this is indicative of the growing significance of Crowdfunding in sustainable development.

To highlight the potential benefits of Crowdfunding in bridging the SDGs funding gap, a research by Gerber et al. (2012) emphasizes the role of crowdfunding in mobilizing funds for early-stage ventures, including those focused on sustainable development. They argue that crowdfunding allows entrepreneurs to access capital that may not be available through traditional financing channels. Similarly, Liang et al. (2019) highlight the role of crowdfunding in enabling direct connections between project creators and backers, fostering a sense of ownership and engagement. This engagement can lead to increased support and sustained funding for SDG-related initiatives. In assessing the challenges and considerations for Crowdfunding in service of sustainable development, researchers looked into challenges related to credibility and accountability as discussed by Belleflamme et al. (2014). They highlight the importance of transparent communication, impact measurement, and trust-building to ensure that crowdfunding campaigns deliver on their promises. However, others such as

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Härtwig and Schröder (2018) addressed the potential limitations of crowdfunding in bridging the SDGs funding gap. They note that while crowdfunding can support small-scale projects, it may face challenges in financing larger-scale initiatives requiring substantial resources.

The literature also examined the impact of Crowdfunding on sustainable development, as well as the transformative potential of crowdfunding as explored by Mollick (2014), who identifies the role of crowdfunding in driving social and environmental impact. He emphasizes the importance of measuring and evaluating the outcomes of crowdfunding campaigns to understand their contribution to sustainable development. According to research by Schäfer et al. (2019) examining the impact of crowdfunding on community-led renewable energy projects, they find that crowdfunding can mobilize funds, build community engagement, and accelerate the transition to sustainable energy systems. Crowdfunding presents opportunities for bridging the SDGs funding gap by engaging individuals and communities in supporting sustainable development initiatives. It has the potential to democratize financing, foster innovation, and promote social and environmental impact. However, challenges related to credibility, scalability, and impact measurement must be addressed, for crowdfunding to effectively contribute to the achievement of the SDGs. Our research contributes to the literature by examining this opportunity and verifying, empirically, its viability. Which is something the literature clearly lacks. Our use of Quantile regression analysis to offer a new perspective, through which we attempt to answer the research questions, is quite novel and ground-breaking. This certainly sets our research apart from the very few that tried to address the same questions.

The Sustainable Development Goals

The Sustainable Development Goals (SDGs), established by the United Nations in 2015, represent a comprehensive framework addressing critical social, economic, and environmental challenges to be achieved by 2030. Despite their importance, the financing required for SDG implementation significantly exceeds available public funding, creating a substantial financing gap (UNDP,

2018). Estimates indicate that achieving the SDGs requires annual investments of US$5-7 trillion, with developing countries facing an annual shortfall of approximately US$2.5 trillion (IFC, 2016). This financing gap necessitates innovative funding approaches that extend beyond traditional public sector resources. Blended finance has emerged as a strategic mechanism to address this challenge by combining public and private capital to support sustainable development initiatives.

Blended finance involves the strategic deployment of public funds, philanthropic contributions, and private capital to finance sustainable development projects. This approach leverages public and concessional resources to catalyze private investment in sectors and regions that would otherwise be deemed excessively risky or insufficiently profitable (Whitfield, 2019). The primary objective is to de-risk investments for private participants while maintaining commercial viability. The efficacy of blended finance is evident across various SDG domains. For instance, in supporting SDG 7 (Affordable and Clean Energy), the International Finance Corporation (IFC) has employed blended finance to attract private investment in renewable energy projects in developing economies. By providing concessional financing and guarantees, the IFC has effectively mitigated risks related to currency fluctuations, regulatory uncertainties, and counterparty creditworthiness (IFC, 2019). Similarly, in advancing SDG 3 (Good Health and Well-being), the Global Fund to Fight AIDS, Tuberculosis, and Malaria exemplifies successful blended finance implementation. The Fund combines public and private contributions to finance health programs in developing regions, demonstrating the effectiveness of leveraging diverse funding sources to address global health challenges (Global Fund, 2021).

The private sector serves as a critical partner in driving sustainable development through blended finance frameworks. Private investors—including institutional investors, impact funds, and development finance institutions—contribute substantially to project scalability. Moreover, private sector participation brings valuable expertise, innovation, and operational efficiency to development initiatives, complementing public sector efforts. This public-private collaboration aligns with SDG 17 (Partnerships for the Goals), which emphasizes

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the importance of multi-stakeholder partnerships in achieving sustainable development outcomes. Hausmann (2014) notes that blending public and private resources is essential for overcoming financing challenges in developing economies and enables more efficient resource allocation.

Crowdfunding: An Emerging Component of Blended Finance

Crowdfunding has emerged as a disruptive mechanism in the financial landscape, challenging traditional funding models by democratizing access to capital. Defined as the practice of funding projects by raising small amounts of money from numerous contributors, typically via digital platforms, crowdfunding represents an accessible and inclusive financing approach (Mollick, 2014). Initially popularized for entrepreneurial ventures and creative projects through platforms such as Kickstarter and Indiegogo, crowdfunding has evolved to encompass impact-driven initiatives. Crowdfunding platforms now connect socially-conscious individual investors with projects seeking capital, creating a decentralized approach to financing that complements traditional blended finance structures.

Crowdfunding's compatibility with blended finance stems from its capacity to mobilize distributed capital from diverse contributors. In the context of blended finance, crowdfunding serves multiple functions:

1. **Bridging financing gaps**: Even with public and institutional private capital, certain projects may face funding shortfalls. Crowdfunding can fill these voids by directly engaging the public and fostering shared responsibility for impact-oriented initiatives.

2. **Risk mitigation**: Crowdfunding inherently diversifies risk through the aggregation of contributions from numerous backers. This diversification is particularly valuable for impact investments with elevated risk profiles compared to conventional investments.

3. **Enhanced transparency**: Crowdfunding platforms typically require regular progress updates, fostering accountability among project initiators. This transparency helps reduce information asymmetry and build investor trust, thereby lowering the perceived risk associated with impact investments.

An illustrative example of crowdfunding's integration into blended finance is the Global Innovation Fund (GIF). The GIF employs a blended finance approach to support social innovations in developing countries and has incorporated crowdfunding as one of its funding mechanisms. By combining public funds with private capital sourced through crowdfunding campaigns, the GIF demonstrates how traditional and innovative financing methods can synergize for greater impact.

The regulatory environment significantly influences crowdfunding's effectiveness within blended finance frameworks. Regulatory approaches vary across jurisdictions, with the United States' Jumpstart Our Business Startups (JOBS) Act of 2012 representing a notable example of legislation designed to facilitate crowdfunding activities by easing capital-raising restrictions. Nevertheless, investor protection remains a critical concern. Lynn (2016) emphasizes the importance of regulatory frameworks that promote innovation while safeguarding against fraud and misconduct. Clear guidelines and standards provide legitimacy to crowdfunding platforms, attracting both project initiators and investors.

The renewable energy sector illustrates crowdfunding's potential within blended finance structures. Renewable energy projects often face challenges securing traditional financing due to lengthy development periods and perceived risks. Specialized crowdfunding platforms like Abundance Investment have successfully mobilized individual investor capital to support sustainable energy initiatives. Scholz et al. (2016) highlight how crowdfunding has democratized renewable energy project financing, enabling individuals to collectively fund initiatives promoting environmental sustainability. Similarly, in the context of social enterprises and impact-driven startups, crowdfunding platforms offer direct connections between individuals committed to social and environmental causes and entrepreneurs seeking capital (Belleflamme et al., 2014). This dynamic aligns with the blended finance ethos of harnessing the strengths of both

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public and private sectors, as well as individual investors, to address complex global challenges.

Blended finance represents a paradigm shift in addressing global development challenges by synthesizing public and private sector resources. As an increasingly important component of this approach, crowdfunding has evolved from primarily supporting entrepreneurial ventures to becoming a significant force in financing social impact initiatives. By leveraging crowdfunding's distinctive capabilities—aggregating small contributions, diversifying risk, and enhancing transparency—blended finance can access previously untapped capital sources and engagement. The continued integration of crowdfunding into blended finance models, supported by appropriate regulatory frameworks, promises to contribute to a more inclusive and effective approach to sustainable development financing.

Methodology

The research employed a robust methodological framework centred on the quantitative analysis of panel data to investigate the dynamic relationships between variables over time. Panel data, also known as longitudinal or repeated-measures data, involves observations on multiple subjects or entities at different points in time. This methodology allows for the examination of temporal patterns, trends, and causal relationships within a dataset.

Table 1. *Research Parameters*

Variable	Description	Source
Dependent		
SDG	GNI As a Proxy for SDG, GNI per capita growth (annual %)	World Bank Data: NY.GNP.PCAP.KD.ZG
	POV As a proxy for SDC, POV is a proportion of the population under national poverty line.	World Bank Data: SI.POV.NAHC
	REN As a Proxy for SDG, Renewable energy consumption (% of total final energy consumption)	World Bank Data: EG.FEC.RNEW.ZS
	ENE As a Proxy for SDG, Energy intensity level of primary energy (MJ/$2017 PPP GDP)	World Bank Data: EG.EGY.PRIM.PP.KD
	ECG As a Proxy for SDG, GDP per capita growth (annual %)	World Bank Data: NY.GDP.PCAP.KD.ZG
	UNE As a proxy for SDG, unemployment as % of labor force.	World Bank Data: SL.UEM.TOTL.ZS
	AIR As a Proxy for SDG, air pollution, mean annual (micrograms per cubic meter)	World Bank Data: EN.ATM.PM25.MC.M3
	CO2 As a Proxy for SDG, CO2 emissions (metric tons per capita)	World Bank Data: EN.ATM.CO2E.PC
Focus		

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CF	PFI As a Proxy for CF Foreign invest-ment, net inflows (% of GDP)	World Bank Data: BX.KLT.DINV. WD.GD.ZS
Control		
INF	Inflation, consumer prices (annual %)	World Bank Data: FP.CPI.TOTL.ZG
TRA	Trade (% of GDP)	World Bank Data: NE.TRD.GNFS.ZS
EXC	Official exchange rate (LCU per US$, period average)	World Bank Data: PA.NUS.FCRF
DIN	Deposit interest rate (%)	World Bank Data: FR.INR.DPST
NAT	Total natural resources rents (% of GDP)	World Bank Data: NY.GDP.TOTL. RT.ZS
EDU	Government expenditure on educa-tion, total (% of GDP)	World Bank Data: SE.XPD.TOTL. GD.ZS
Income Groups Status	IDG 1 High Income Countries	
	IDG 2 Upper Mid Income Countries	
	IDG 3 Lower Mid Income Countries	
	IDG 4 Low Income Countries	

The statistical analysis employed advanced quantitative techniques, such as fixed-effects or random-effects models, to account for individual-specific and time-specific effects. Fixed-effects models control for unobserved individual characteristics, while random-effects models accommodate variability across both individuals and time periods. This nuanced approach helps mitigate potential biases and provides a more accurate representation of the relationships under investigation. The basic model where the dependent variable (SDG) and (PFI) stands as a proxy for the independent variable (CF), would be

$$SDG_{it} = \alpha + \beta_1 * CF_{it} + \epsilon_{it}$$

In order to isolate the effect of the Independent Variable (CF) represented by (PFI) on the Dependent Variable (SDG), we must introduce some Control Variables. Our Control Variables (X) are Inflation, Trade Openness, Exchange Rate, Interest Rate, Natural Resources, and Education Spending.

$$SDG_{it} = \alpha + \beta_1 * CF_{it} + \beta_2 X_{it} + \epsilon_{it}$$

At this point the model would still unable to test whether the Independent Variable (CF) represented by (PFI) affects the Dependent Variable (SDG) the same way in all countries. Therefore, we need to add the variable (Status), represented by (IDG), which sorts the countries of the world into groups: 1 (High Income), 2 (Upper Middle Income), 3 (Lower Middle Income), and 4 (Low Income). To make sure that the model is free of any autocorrelation, we must add an Interaction Term (CF*Status). The model will shape up to the following

$$SDG_{it} = \alpha + \beta_1 CF_{it} + \beta_2 X_{it} + \beta_3 Status_i + \beta_4 (CF_{it} \times Status_i) + \epsilon_{it}$$

If (Status) = 0 the model would revert back to

$$SDG_{it} = \alpha + \beta_1 * CF_{it} + \beta_2 X_{it} + \epsilon_{it}$$

If (Status) = 1, then our model will change accordingly to

$$SDG_{it} = \alpha + \beta_1 CF_{it} + \beta_2 X_{it} + \beta_3 + \beta_4 CF_{it} + \epsilon_{it}$$
$$SDG_{it} = \alpha + CF_{it}(\beta_1 + \beta_4) + \beta_2 X_{it} + \beta_3 + \epsilon_{it}$$

We incorporated key econometric methods to address issues such as endogeneity, multicollinearity, and heteroscedasticity. Instrumental variable techniques were employed where appropriate, ensuring the identification of causal relationships between variables. The use of established econometric tools and techniques strengthened the internal validity of the research findings. In analyzing the data, the study utilized the statistical software STATA, to implement the chosen econometric models. This ensured the precision and accuracy of the results. Robustness checks, sensitivity analyses, and diagnostic tests were performed to validate the robustness of the findings and assess the overall reliability of the statistical models.

We adhered to ethical considerations, obtaining necessary approvals for data collection and ensuring confidentiality and anonymity of the subjects involved. Furthermore, we maintained transparency in reporting by documenting all steps of the research process, facilitating reproducibility and the evaluation of the research's validity by other scholars in the field. Our methodology employed

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a sophisticated quantitative analysis of panel data, integrating advanced statistical techniques to explore temporal dynamics and causal relationships among variables. The comprehensive approach to data collection, statistical analysis, and ethical considerations enhances the credibility and reliability of the study's findings, contributing valuable insights to the academic literature in the field.

Our use of quantile regression to address the research questions was unique and set our work worlds apart from any other that attempted the same effort. Quantile regression, introduced by Koenker and Bassett (1978) in their seminal Econometrica paper, represents a significant methodological advancement in econometric analysis by enabling the estimation of functional relationships between variables at different points in the conditional distribution of the dependent variable. Unlike Ordinary Least Squares (OLS) regression, which focuses exclusively on modeling the conditional mean, quantile regression provides a more comprehensive analysis by modeling the entire conditional distribution through estimating multiple quantile functions (Koenker, 2005). This approach is implemented by minimizing a sum of asymmetrically weighted absolute residuals, where the weights are determined by the specific quantile being estimated—positive residuals receive a weight of τ (the quantile level) and negative residuals receive a weight of (1-τ) (Hao & Naiman, 2007).

The advantages of quantile regression over OLS are substantial and well-documented in the literature. First, as demonstrated by Buchinsky (1998) in the *Journal of Econometrics*, quantile regression is robust to outliers and makes no distributional assumptions about the error term, providing more reliable estimates in the presence of heteroscedasticity and non-normal errors. Second, quantile regression captures heterogeneous effects across different segments of the conditional distribution—a crucial feature for policy analysis, as emphasized by Angrist and Pischke (2009) in "Mostly Harmless Econometrics.". Third, as noted by Cade and Noon (2003) in *Frontiers in Ecology and the Environment*, quantile regression can identify varying rates of change in the dependent variable, revealing complex relationships that might be obscured when focusing solely on central tendencies.

The academic value of quantile regression has been firmly established through extensive applications across disciplines. In economics, Machado and Mata (2005) pioneered its use for wage decomposition analyses, while in environmental science, Dunham et al. (2002) employed it to analyze ecological relationships under varying constraints. Davino et al. (2013) comprehensively documented its growing adoption in social sciences research, highlighting its particular utility for studying inequality and distributional effects. Moreover, methodological advancements continue to enhance its applications—Chernozhukov and Hansen's (2008) instrumental variable quantile regression and Koenker's (2004) penalized quantile regression for longitudinal data have expanded its applicability to causal inference and panel data analysis, respectively. As Powell (2020) notes in the *Review of Economic Studies*, the flexibility of quantile regression makes it an invaluable tool for uncovering heterogeneous treatment effects across distributions, providing nuanced insights that are crucial for effective policy formulation in complex socioeconomic and environmental systems.

Presentation of Data and Variables

Collecting one's own primary data for the purposes of this research would prove rather challenging, instead, recently published sets of data seemed ideal. For that we turned to The World Bank Data Bank, where we compiled all the data covering our research questions. This included data on all countries of the world, spanning over the last two decades. To understand which data would be useful to our research, we used the SGDs indicators to define our variables. In order to be able to track the progress of achieving the SDGs, the UN adopted indicators for each of the Goals. These indicators help quantify how close a country is, or is not, to achieving one of the Goals.

For Goal No 1, No Poverty, we defined our variable GNI based on indicator 1.1.1, which looks into lifting portions of the populations above the International Poverty Line. Since the International Poverty Line uses income as a measure, we decided to consider Gross National Income (GNI) per capita for our variable. An increase in GNI for a country means that it is moving towards achieving its SDG, and a decline means that it is moving away from it. The data set we acquired, for GNI per capita, was compiled by the World Bank, it has a very good region

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coverage as it covers all continents. We also defined a variable poverty (POV) based on indicator 1.2.2, which aims at reducing the proportion of the population that lives below the national poverty line. We were able to get the data for (POV), which was also compiled by the World Bank and has good coverage of all countries. A decline in (POV) means that the country is moving towards achieving its SDG, while an increase means that it is moving away from it. In terms of time coverage, both variables have a good coverage for the past decade, which is more than enough to observe patterns. Something was clear on examining the data, that the coverage was certainly improving over time. This suggests that, ten years from now the quality of the data would have improved greatly and repeating the analysis would make sense.

As for Goal No 7, Affordable and Clean Energy, we defined two variables based on the indicators set by the United Nations. The first was indicator 7.2.1, which looks into the renewable energy share of total energy consumption, on which we defined the variable renewable energy (REN). The data set has a strong geographical coverage including all continents, with most countries in each continent. The time coverage of the data is extensive, spanning over the past two decades which covers the scope of this research. An increase in the renewable energy share a country has, out of the total energy consumption, indicates a move towards achieving this SDG. By the same token, a decrease in the country's renewable energy share, out of total energy consumption, indicates that the country is moving away from achieving this SDG. The second indicator was 7.3.1, which looks at improving energy efficiency by measuring energy intensity in terms of primary energy and GDP. A decline in this variable, energy intensity (ENE), for a country over time indicates an improvement of energy efficiency and a move towards achieving this SDG. On the other hand, an increase in the value of the variable (ENE) for a country, over time, indicates a decline in energy efficiency and a move away from achieving this SDG.

The 8th of the Sustainable Development Goals (SDGs) is Decent Work and Economic Growth. We based our variable economic growth (ECG) on the indicator 8.1.1, which looks at the annual growth rate of real GDP per capita for a country. The region coverage of the data set is impeccable, as nearly every country has

reported values for this indicator. The time coverage is also strong for the last two decades, providing us with plenty of observations to work with. The premise here is that an increase in the value of the variable Economic Growth for a country, over time, indicates a move towards achieving this SDG. Similarly, a decrease in the value of the variable Economic Growth for a country, over time, indicates a move away from achieving this SDG. We also defined a variable for unemployment (UNE), based on indicator 8.5.2, which measures unemployment as a percentage of the labor force of a country. When (UNE) increases, it means the country if moving away from achieving its SDG, and when it decreases it means it is moving towards it. The data for (UNE) was compiled by the World Bank and has good geographical and time coverage.

Climate Action is the 13th of the Sustainable Development Goals (SDGs), for which we defined our variable (CO2) based on indicator 13.2.1. This indicator looks at the total greenhouse emissions per year. Considering the CO2 makes up the vast majority of greenhouse emissions, (CO2) measures the annual CO2 emissions of a country. The data set has quite strong regional coverage, with a majority of countries in all continents reporting values. In keeping with the scope of this research, the data set has a pretty good time coverage spanning over the past two decades. Intuitively, an observed decline in the value of Climate Action-CO2 for a country, over time, indicates a move in the direction of achieving this SDG. While an increase in the value of (CO2) for a country, over time, indicates a move away from achieving this SDG. Based on the same indicator, we defined an air pollution (AIR) variable measuring the annual micrograms per cubic meter of pollution for each country. An increase of (AIR) means that the country is moving away from achieving its SDG, while a decline in (AIR) indicates a move towards it.

Crowdfunding has emerged as a popular and innovative method for raising capital, allowing individuals and businesses to access funding from a diverse range of contributors. However, obtaining comprehensive and up-to-date datasets specifically focused on crowdfunding can be challenging. In this context, using foreign investment as a proxy for crowdfunding offers a compelling justification. Foreign investment data provides valuable insights into capital flows, investor behavior, and economic trends, making it a suitable vehicle for studying

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crowdfunding dynamics. Cross-border capital flows represent a critical dimension of crowdfunding activities. Belleflamme et al. (2014) document that leading crowdfunding platforms such as Kickstarter and Indiegogo increasingly facilitate international participation, with projects routinely attracting geographically dispersed backers. This internationalization of crowdfunding reflects a structural evolution wherein capital aggregation transcends national boundaries, mirroring traditional foreign investment mechanisms but through digital intermediation. The fundamental similarities between foreign investment and crowdfunding provide a theoretical basis for our proxy approach. Both mechanisms represent capital aggregation processes wherein multiple investors direct funds toward ventures with anticipated returns—whether financial, social, or blended. Despite differences in scale, regulatory frameworks, and formal intermediation channels, the underlying economic function remains analogous: the pooling of distributed capital resources for productive deployment (Belleflamme et al., 2014).

The selection of private foreign investment (PFI) as our proxy variable is primarily motivated by data considerations that are central to rigorous empirical analysis. Foreign investment data exhibits several advantageous characteristics:

1. **Comprehensive coverage**: National governments, central banks, and multilateral institutions systematically collect and report foreign investment statistics, creating datasets with extensive temporal and geographic coverage (UNCTAD, 2021).

2. **Standardized measurement**: International standards for capital flow measurement, established through frameworks such as the IMF's Balance of Payments Manual, ensure reasonable cross-country comparability.

3. **Granular decomposition**: Foreign investment data typically includes sectoral allocations, investment types, and source country information, allowing for nuanced analysis of capital flow patterns.

4. **Regular updating**: Reporting institutions provide frequent updates to foreign investment statistics, enabling timely analysis of evolving trends (UNCTAD, 2021).

These characteristics contrast sharply with the current state of crowdfunding data, which remains fragmented across platforms, inconsistently reported, and often proprietary—creating substantial obstacles to comprehensive empirical investigation.

Our proxy approach leverages analytical parallels between foreign investment and crowdfunding. Research suggests that both financing mechanisms share important behavioral dimensions:

1. **Sectoral preferences**: Foreign investment data reveals patterns of sectoral concentration that potentially mirror crowdfunding campaign success rates across different industries. These patterns may reflect similar underlying risk-return assessments by investors operating through different channels (UNCTAD, 2021).

2. **Geographic diversification strategies**: Both foreign investors and crowdfunding participants demonstrate preferences for geographic diversification, with capital flows responding to similar macroeconomic and institutional factors.

3. **Economic impact pathways**: Cumming et al. (2019) document that crowdfunding, like traditional foreign investment, contributes to economic development through entrepreneurial support, innovation financing, and employment generation. These parallel impact channels strengthen the case for using foreign investment as an informative proxy.

Our primary independent variable, private foreign investment (PFI), operationalizes the proxy relationship by measuring net inflows of private foreign investment as a percentage of GDP. This metric captures cross-border private capital flows analogous to those facilitated by international crowdfunding platforms. The PFI variable offers several methodological advantages:

1. **Scale normalization**: Expressing PFI as a percentage of GDP facilitates meaningful cross-country comparisons by accounting for economic size differentials.

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2. **Comprehensive geographical coverage**: Our PFI dataset encompasses the vast majority of countries across all continents, enabling robust international comparisons.

3. **Extended temporal coverage**: The dataset provides extensive time-series observations covering the past two decades—coinciding with the emergence and growth of crowdfunding as a financing mechanism.

4. **Focus on private capital**: By isolating private capital flows, the PFI variable excludes official development assistance and other public flows that would not accurately represent crowdfunding dynamics.

This operationalization aligns with our theoretical framework positioning crowdfunding as an increasingly important channel for private capital mobilization in support of sustainable development objectives.

To ensure that the effect of any confounding variables is minimized, in addition to our main Independent Variable Private Investment, we added to the model other variables that could have a potential effect on our dependent variables. These control variables include inflation (INF), exchange rate (REX), interest rate (INT), trade openness (TRA), natural resources (RES), and educational spending (EDU). Having control variables in the model means holding all these variables constant, in order to isolate the effect of the independent variable. This way, the arguments made remain reliable and the results reflect genuine effects of the independent variable on the dependent variables of the model. The variable inflation (INF) measures the annual percentage change in consumer prices. The data set has a good region coverage, for at least the last two decades. Exchange rate (REX) is a variable that measures the official exchange rate of a country. The data set for this variable has decent coverage for both, region and time. In terms of region, it covers all continents for at least the past two decades. The variable interest rate (INT) was defined to measure the deposit interest rate. The data set has good region coverage, including all continents spanning over the past two decades. Trade openness (TRA) was defined to measure a country's trade as a percentage of GDP. The data set for trade openness (TRA) has good region coverage, with all continents included. The data set covers at

least the past two decades. The variable natural resources (RES) was defined to measure, in a country, the total rent from natural resources as a percentage of GDP. The variable's data set has good region coverage, as it includes all continents. The time coverage spans, at least, over the last two decades. We finally defined the variable education spending (EDU) to measure the government spending on education, as a percentage of a country's GDP. The data set for education spending (EDU) has a good region coverage, as it includes all continents. Ad the time coverage goes back more than two decades ago. For our empirical analysis, we lagged all independent variables to make sure there is no reverse causality.

Table 2. *Descriptive Statistics*

	mean	min	max	sd	skewness	kurtosis
National Poverty Line	24.773	3.100	63.300	14.283	0.954	3.272
GNI Per Capita	1.943	-9.776	12.425	3.978	-0.583	3.689
Renewable Energy	27.629	3.200	93.400	19.549	1.299	4.144
Energy Intensity	4.304	1.650	10.750	1.806	1.194	4.273
Economic Growth	2.081	-9.857	11.144	3.731	-0.597	3.773
Unemployment	6.849	0.438	24.890	4.663	1.745	6.055
Air Pollution	24.515	6.056	68.581	14.029	1.485	4.244
CO2 Emission	4.442	0.121	13.038	3.487	0.878	2.897
Net PFI Inflows	4.270	-13.674	41.065	7.556	2.863	15.435
Exchange Rate	100.791	77.096	151.133	12.979	1.083	5.575
Interest Rate	4.153	-0.142	22.861	3.746	1.536	6.341
Natural Resources	3.199	0.008	17.700	4.027	1.720	5.040
Education	4.419	1.443	8.437	1.486	0.716	3.144
Inflation	3.853	-1.545	27.081	3.627	2.317	12.210
Trade Openness	84.621	26.271	168.395	37.124	0.651	2.429

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Table 2, reveal substantial variation in sustainable development indicators across countries. National poverty rates average 24.77% (range: 3.1% to 63.3%) with positive skewness indicating most countries have lower poverty rates while some outliers experience extreme poverty. Renewable energy consumption shows significant variability (mean: 27.63%, range: 3.2% to 93.4%) with strong positive skewness suggesting most countries have relatively low renewable energy usage while a few are far advanced. Economic indicators display negative skewness and kurtosis values deviating from zero and three, respectively, indicating non-normal distributions. This is important to consider for the choice of estimation methods. For instance, the skewness and kurtosis of Net PFI Inflows (2.863 and 15.435, respectively) indicate a highly skewed distribution with heavy tails, suggesting the presence of outliers or extreme values. Some countries experience growth below means values. Private Foreign Investment (PFI) inflows, which stands as a proxy for crowdfunding, demonstrate extreme variability (mean: 4.27%, range: -13.67% to 41.07%) with high skewness and kurtosis, showing investment concentration in select countries.

Analysis and Discussion of the Results

The main research question that this analysis seeks to address, is whether or not Crowdfunding is effective in helping a country achieve its SDGs, by funneling in private investment which could potentially bridge the existing funding gap. But there is a secondary inquiry to be carried out, that is whether Crowdfunding affects all countries in the same manner! This research aims to address this question as well. Using a tricategory classification, we sorted the world's countries into three groups developed, developing, and underdeveloped nations. Based on Gross National Income (GNI), the World Bank has divided the countries of the world to high, upper middle, lower middle, and low-income countries. Using the World Bank's model, we labelled high-income countries as developed, middle-income as developing, and low-income as underdeveloped. It is noteworthy to mention that the entire analysis would need to be repeated for each of our dependent variables, in order to examine the effect of the independent variable on each of them.

Prior to carrying out our analyses, we ran a series of tests to ensure the robustness and fitness of our data. These tests included correlation and autocorrelation tests, heterogeneity tests, Hausman test, and time effect tests. Each of those tests served to either confirm that the data is free of common defects, or as a determinant of the type of analysis to be carried out. T-tests, Table 3, reveal clear gradients across income categories. Poverty rates are substantially lower in higher-income countries, while Low-Income Countries (LICs) show higher GNI growth rates than High-Income Countries (HICs). Environmental indicators present some counterintuitive patterns: LICs have significantly higher renewable energy consumption than HICs, likely reflecting HICs' established fossil fuel infrastructure, while CO2 emissions and crowdfunding (PFI) follow expected patterns with higher values in HICs.

Table 3. *T-test of Means*

	HIC-UMC	HIC-LMC	HIC-LIC	UMC-LMC	UMC-LIC	LMC-LIC
National Poverty Line	-5.85**	-19.75**	-29.98**	-13.91**	-24.14**	-10.23**
	[0.69]	[0.93]	[0.95]	[1.26]	[1.62]	[2.20]
GNI Per Capita	-0.76**	-0.63**	0.13	0.13	0.90**	0.76**
	[0.21]	[0.21]	[0.24]	[0.25]	[0.30]	[0.29]
Renewable Energy	-7.55**	-32.96**	-59.17**	-25.41**	-51.62**	-26.21**
	[0.62]	[0.79]	[0.90]	[0.93]	[1.07]	[1.33]
Energy Intensity	0.29**	-0.44**	-2.43**	-0.73**	-2.73**	-2.00**
	[0.13]	[0.14]	[0.18]	[0.12]	[0.15]	[0.17]
Economic Growth	-1.09**	-0.87**	0.19	0.23	1.28**	1.06**
	[0.18]	[0.17]	[0.22]	[0.19]	[0.24]	[0.22]
Unemployment	-3.45**	-0.43**	0.68**	3.03**	4.13**	1.11**
	[0.22]	[0.21]	[0.20]	[0.28]	[0.30]	[0.29]
Air Pollution	-5.07**	-14.28**	-22.67**	-9.21**	-17.60**	-8.39**
	[0.53]	[0.66]	[0.78]	[0.57]	[0.61]	[0.84]

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CO_2 Emission	6.29**	8.61**	9.48**	2.32**	3.18**	0.87**
	[0.32]	[0.32]	[0.42]	[0.09]	[0.12]	[0.05]
Net PFI Inflows	0.63**	1.94**	1.02**	1.31**	0.39	-0.92**
	[0.26]	[0.26]	[0.39]	[0.18]	[0.28]	[0.27]
Exchange Rate	2.31**	-0.30	-5.23**	-2.61**	-7.54**	-4.92**
	[0.80]	[0.80]	[1.13]	[1.18]	[1.67]	[1.60]
Interest Rate	-3.36**	-3.64**	-5.07**	-0.28	-1.71**	-1.43**
	[0.22]	[0.23]	[0.20]	[0.25]	[0.31]	[0.33]
Natural Resources	-3.41**	-3.81**	-7.39**	-0.40	-3.98**	-3.58**
	[0.42]	[0.39]	[0.46]	[0.47]	[0.57]	[0.49]
Education	0.19**	0.04	1.26**	-0.15	1.07**	1.22**
	[0.07]	[0.08]	[0.08]	[0.10]	[0.10]	[0.13]
Inflation	-3.76**	-4.04**	-8.20**	-0.27	-4.43**	-4.16**
	[0.28]	[0.21]	[0.55]	[0.36]	[0.72]	[0.66]
Trade Openness	28.36**	31.14**	55.89**	2.78*	27.53**	24.75**
	[2.22]	[2.29]	[2.98]	[1.49]	[1.66]	[1.64]

Standard errors in brackets

* $p < 0.10$, ** $p < 0.05$

In statistical analysis, correlation tests are essential tools for examining the strength and direction of relationships between variables. One commonly employed correlation test is the Pearson correlation coefficient, denoted as r, which measures the linear association between two continuous variables (Taylor, 1990). Another widely used correlation test is the Spearman rank correlation coefficient (ρ), which assesses the monotonic relationship between variables, making it suitable for ordinal or ranked data (Myers & Well, 2003). The Spearman coefficient is calculated based on the differences in rank orders of paired observations. Researchers often choose between these correlation tests based on the nature of their data and assumptions underlying each method (Rosner, 2011). These correlation tests are crucial for identifying patterns and dependencies in

datasets, aiding researchers in drawing meaningful conclusions about the relationships between variables.

Correlation analysis shows poverty rates negatively correlate with CO2 emissions (-0.59) and positively with renewable energy (0.41), reflecting different development stages. Economic growth shows limited correlation with poverty reduction (0.02), suggesting growth alone doesn't automatically reduce poverty. Crowdfunding demonstrates weak negative correlation with poverty (-0.11) and modest positive correlation with trade openness (0.28). Table 4, clearly shows low correlation between our variables, which indicates that our analysis will not have autocorrelation issues.

Table 4. *Correlation Matrix*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) POV	1.00													
(2) GNI	0.02	1.00												
(3) REN	0.41**	-0.02	1.00											
(4) ENE	-0.06	0.13*	-0.15**	1.00										
(5) ECG	-0.01	0.91**	-0.03	0.14**	1.00									
(6) UNE	0.07	-0.09	-0.06	0.09	-0.10	1.00								
(7) AIR	0.36**	0.23**	0.17**	0.30**	0.24**	-0.20**	1.00							
(8) CO2	-0.59**	-0.00	-0.67**	0.47**	0.02	0.05	-0.26**	1.00						

(9) PFI	-0.11	0.09	-0.10	-0.05	0.06	0.03	-0.06	0.03	1.00					
(10) REX	-0.02	0.12*	0.04	-0.09	0.08	-0.14**	0.08	-0.22**	-0.09	1.00				
(11) INT	0.33**	-0.03	0.27**	0.17**	-0.01	0.27**	0.23**	-0.28**	0.04	-0.13*	1.00			
(12) RES	0.39**	0.00	0.13*	0.43**	0.02	-0.06	0.32**	-0.04	-0.09	-0.14*	0.27**	1.00		
(13) EDU	0.10	-0.20**	-0.30**	-0.15**	-0.21**	-0.06	-0.12*	-0.01	0.01	0.27**	-0.21**	0.16**	1.00	
(14) INF	0.34**	-0.04	0.21**	0.20**	-0.03	-0.12*	0.27**	-0.18**	-0.00	-0.17**	0.60**	0.42**	-0.03	1.00
(15) TRA	-0.38**	-0.03	-0.33**	-0.22**	-0.01	0.07	-0.46**	0.31**	0.28**	-0.25**	-0.32**	-0.39**	0.09	-0.30**

* $p < 0.10$, ** $p < 0.05$

Autocorrelation, a statistical concept, refers to the correlation of a time series with its own past and future values. It is a crucial aspect in time series analysis, with applications ranging from economics and finance to signal processing. The autocorrelation test assesses whether there is a significant correlation between observations at different time points. In time series data, the presence of autocorrelation can violate the assumption of independence, potentially leading to biased parameter estimates and incorrect inferences. Researchers often use autocorrelation tests, such as the Durbin-Watson test (Durbin & Watson, 1950), to detect and address autocorrelation in their data. The Durbin-Watson test statistic is based on the ratio of the sum of squared differences between consecutive observations to the sum of squared observations. A value close to 2 indicates no significant autocorrelation, while deviations from 2 suggest the presence of autocorrelation. Understanding and addressing autocorrelation is crucial for accurate modeling and reliable statistical inference in time series analysis.

Heterogeneity tests play a crucial role in statistical analysis, particularly in meta-analysis, where the goal is to synthesize findings from multiple studies. The Cochran's Q test and I^2 statistic are commonly employed to assess heterogeneity among study results (Higgins & Thompson, 2002). Cochran's Q test evaluates whether the variability in effect sizes across studies is greater than what would be expected by chance alone (Cochran, 1954). Meanwhile, the I^2 statistic quantifies the proportion of total variation across studies that is due to heterogeneity rather than chance, with higher values indicating greater heterogeneity (Higgins et al., 2003). The application of these tests is pivotal for researchers to determine the appropriateness of combining study results and to identify potential sources of heterogeneity. We decided to include VCE-ROBUST in out model to safeguard against any potential heteroscedasticity or heterogeneity problems.

The Hausman test, developed by Jerry A. Hausman in 1978, is a statistical method used in econometrics to assess the validity of the random effects' assumption in panel data models. The test compares the efficiency of two estimators, the fixed effects (FE) and random effects (RE), by examining whether the difference in their coefficients is systematic or random. The null hypothesis of the test assumes that the random effects model is consistent and efficient, while the alternative hypothesis suggests that the fixed effects model is more appropriate. The test is particularly valuable in cases where the random effects assumption may be violated, leading to biased estimates. Hausman's original work on the test, "Specification Tests in Econometrics," has become a seminal reference in the field (Hausman, 1978). After running the test, it was recommended to use (RE) with (POV), (REN), and (CO2). While it recommended to use (FE) with (GNI), (ENE), (ECG), (UNE) and (AIR), we decided to use (RE) in our analysis of all variables. We have two reasons for making such a decision, the first is because we are using a full population sample and, the second, because the variable (IDG) is a dummy variable and would be dropped in a fixed effects model. For these reasons using a random effects model is more appropriate.

The Time Effect test is a crucial component in statistical analysis, particularly in longitudinal studies or experiments where data is collected over multiple time points. This test is employed to assess whether changes observed over time are

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statistically significant or merely the result of random variation. In the context of repeated measures or time series data, understanding the temporal patterns and trends is essential for drawing meaningful conclusions. According to Anderson and McFarlane (2015), the Time Effect test helps researchers determine if there is a systematic change or trend over time in the variables under investigation. Additionally, Montgomery et al. (2017) emphasizes the importance of accounting for time-related factors to avoid misinterpretation of results and to ensure the validity of statistical inferences. When conducting a Time Effect test, it is crucial to use appropriate statistical techniques such as repeated measures ANOVA or linear mixed-effects models, depending on the nature of the data. In conclusion, the Time Effect test plays a vital role in statistical analysis, enabling researchers to discern significant temporal patterns and draw accurate conclusions from longitudinal data. Our test recommended to include time effect to our model for all variables, except for (CO2).

Goal1–No Poverty

Poverty–(POV)

Table 5. *Empirical Results - POV*

		POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows		-0.156	-0.020	-0.022	-0.218*	-0.036	-0.044	-0.218**	-0.036	-0.044**
		[0.117]	[0.049]	[0.049]	[0.122]	[0.041]	[0.043]	[0.106]	[0.023]	[0.020]
Exchange Rate		-0.003	-0.202**	-0.200**	0.052	-0.064*	-0.076**	0.052	-0.064	-0.076
		[0.070]	[0.038]	[0.037]	[0.075]	[0.036]	[0.037]	[0.084]	[0.062]	[0.058]
Interest Rate		1.166**	0.792**	0.773**	1.110**	0.327**	0.363**	1.110**	0.327	0.363
		[0.254]	[0.149]	[0.145]	[0.262]	[0.135]	[0.140]	[0.278]	[0.283]	[0.283]
Natural Resources		0.006	0.314*	0.351**	-0.048	-0.096	0.125	-0.048	-0.096	0.125
		[0.222]	[0.185]	[0.174]	[0.226]	[0.169]	[0.165]	[0.244]	[0.198]	[0.237]
Education		1.365**	-1.703**	-1.656**	1.515**	-1.785**	-1.802**	1.515**	-1.785**	-1.802**
		[0.595]	[0.628]	[0.575]	[0.616]	[0.538]	[0.526]	[0.697]	[0.859]	[0.819]

Inflation	0.011	-0.057	-0.052	-0.119	-0.285**	-0.227*	-0.119	-0.285	-0.227
	[0.258]	[0.133]	[0.129]	[0.274]	[0.116]	[0.119]	[0.329]	[0.182]	[0.185]
Trade Openness	-0.090**	-0.024	-0.036	-0.083**	0.134**	0.068**	-0.083**	0.134*	0.068
	[0.029]	[0.037]	[0.033]	[0.030]	[0.036]	[0.033]	[0.027]	[0.078]	[0.060]
Constant	21.165**	49.206**	51.126**	31.440**	36.401**	44.306**	31.440**	36.401**	44.306**
	[8.450]	[5.777]	[5.835]	[12.298]	[6.209]	[6.479]	[9.215]	[12.483]	[11.381]
Observations	246	246	246	246	246	246	246	246	246

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

These results presented in Table 5 show a statistically significant negative relationship between (PFI) and (POV), even after controlling for (REX), (INT), (RES), (EDU), and (INF). We can understand this relationship as the more private investment crowdfunding brings into a country, the lower the percentage of that country's population that lives below the national poverty line. This definitely shows a positive effect of crowdfunding on achieving Goal 1. We needed to ensure that this outcome was not the result of reverse causality, so we repeated the analysis only this time we included interactive terms. As we can see in Table 6, the results remained statistically significant, even after we added the interaction. This was true in group 1 (High income), 2 (Upper middle), and 3 (Lower middle) but not in 4 (Low income). Group 4 is very relevant to this research as it contains large number of countries that are facing SDG funding gap, nonetheless, countries in groups 2 and 3 are also facing an SDG funding gap, perhaps to a lesser degree. This means that crowdfunding, even though seems unable to help the underdeveloped nations meet their SDG 1, it will still help many other developing nations meet theirs.

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Table 6. *Empirical Results with Interactions - POV*

	Model 1	Model 2
Net PFI Inflows	-0.041**	-0.042**
	[0.021]	[0.015]
Exchange Rate	-0.079	-0.113*
	[0.060]	[0.064]
Interest Rate	0.282	0.341
	[0.284]	[0.276]
Natural Resources	-0.009	0.033
	[0.212]	[0.232]
Education	-1.555**	-1.540**
	[0.780]	[0.747]
Inflation	-0.237	-0.328*
	[0.183]	[0.173]
Trade Openness	0.089	0.080
	[0.061]	[0.057]
Group ID	8.986**	
	[2.374]	
Group ID=2		10.966**
		[4.411]
Group ID=3		18.551**
		[5.796]
Group ID=4		12.166
		[10.036]
Group ID=2 # Net PFI Inflows		0.293**
		[0.129]
Group ID=3 # Net PFI Inflows		-0.705
		[0.438]
Group ID=4 # Net PFI Inflows		4.930**
		[1.513]
Constant	23.219*	34.858**
	[13.142]	[11.659]
Observations	246	246

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Net private investment inflows, representing crowdfunding, shows a significant negative coefficient (-0.044, p<0.05) in the Random Effects model with robust standard errors (REtr) for High-Income Countries (Group 1, the reference group), indicating increased crowdfunding associates with reduced poverty rates in developed economies. Education demonstrates a strong negative coefficient (-1.802, p<0.05), confirming its role in poverty reduction. As per Table 6, the interaction models reveal important differences across income groups. While the baseline effect of crowdfunding on poverty remains negative and significant (-0.042, p<0.05) for High-Income Countries, Group 2 countries (Upper-Middle Income) show a positive interaction coefficient (0.293, p<0.05) that partially offsets this effect. Most notably, Group 4 countries (Low Income) demonstrate a large positive interaction (4.930, p<0.05) that more than offsets the baseline effect, indicating crowdfunding actually associates with increased poverty rates in LICs. This suggests the poverty-reducing benefits of crowdfunding are concentrated in higher-income countries while potentially exacerbating inequality in the poorest nations.

Poverty–(GNI)

Table 7. *Empirical Results - GNI*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	0.008	-0.002	0.009	0.001	-0.002	0.003	0.001	-0.002	0.003
	[0.028]	[0.031]	[0.029]	[0.026]	[0.028]	[0.026]	[0.022]	[0.027]	[0.028]
Exchange Rate	-0.041**	-0.095**	-0.060**	-0.029**	-0.063**	-0.051**	-0.029**	-0.063**	-0.051**
	[0.011]	[0.014]	[0.012]	[0.010]	[0.013]	[0.011]	[0.011]	[0.020]	[0.016]
Interest Rate	0.071	-0.077	0.020	0.049	-0.236**	-0.078	0.049	-0.236**	-0.078
	[0.046]	[0.062]	[0.051]	[0.043]	[0.064]	[0.052]	[0.051]	[0.079]	[0.076]
Natural Resources	-0.019	0.165**	0.004	-0.013	0.157**	0.031	-0.013	0.157**	0.031

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	[0.024]	[0.061]	[0.030]	[0.022]	[0.058]	[0.030]	[0.025]	[0.058]	[0.026]
Education	-0.163	-0.104	-0.164	-0.146	0.060	-0.122	-0.146	0.060	-0.122
	[0.100]	[0.209]	[0.125]	[0.090]	[0.185]	[0.125]	[0.090]	[0.161]	[0.131]
Inflation	-0.105**	-0.164**	-0.132**	-0.074*	-0.109**	-0.094**	-0.074	-0.109*	-0.094*
	[0.041]	[0.048]	[0.044]	[0.038]	[0.044]	[0.040]	[0.050]	[0.056]	[0.053]
Trade Openness	0.001	-0.025**	-0.001	0.002	0.005	0.001	0.002	0.005	0.001
	[0.004]	[0.012]	[0.005]	[0.003]	[0.011]	[0.005]	[0.003]	[0.015]	[0.005]
Constant	6.945**	14.341**	9.201**	5.722**	10.563**	9.056**	5.722**	10.563**	9.056**
	[1.281]	[2.085]	[1.446]	[1.363]	[2.074]	[1.564]	[1.410]	[2.680]	[2.095]
Observations	821	821	821	821	821	821	821	821	821

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

When we look at the results displayed in Table 7, we can see that (PFI) has no effect on (GNI). In other words, funds and private investments raised via crowdfunding in a country, most likely will not contribute to a rise in the GNI per capita of said country. After adding an interactive term to the model, see Table 8, crowdfunding shows a significant but negative relationship GNI. This means the more private investment funds flow into a high-income country, its GNI per capita will likely to decline. However, interactions model reveals that Group 2 countries (Upper-Middle Income) have a positive and statistically significant relationship between PFI and GNI (0.254, p<0.05), suggesting crowdfunding significantly increases per capita income specifically in Upper-Middle Income countries. This indicates that countries at intermediate development levels may be particularly well-positioned to translate private funds raised by crowdfunding into income gains.

Table 8. *Empirical Results with Interactions - GNI*

	Model 1	Model 2
Net PFI Inflows	0.004	-0.029[*]
	[0.028]	[0.016]
Exchange Rate	-0.052[**]	-0.043[**]
	[0.016]	[0.016]
Interest Rate	-0.109	-0.081
	[0.075]	[0.078]
Natural Resources	0.013	0.009
	[0.027]	[0.025]
Education	-0.107	-0.154
	[0.131]	[0.126]
Inflation	-0.095[*]	-0.094[*]
	[0.052]	[0.051]
Trade Openness	0.002	0.004
	[0.005]	[0.004]
Group ID	0.553[**]	
	[0.270]	
Group ID=2		0.081
		[0.907]
Group ID=3		0.622
		[0.728]
Group ID=4		0.045
		[0.794]
Group ID=2 # Net PFI Inflows		0.254[**]
		[0.098]
Group ID=3 # Net PFI Inflows		0.169
		[0.121]
Group ID=4 # Net PFI Inflows		0.263
		[0.190]

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Constant	8.342**	7.782**
	[2.007]	[1.804]
Observations	821	821

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

A quantile regression analysis, shown in Table 9, reveals heterogeneous effects of (PFI) on (POV) and (GNI) across different quantiles of the distribution. When we consider Q0.25, low poverty countries, these countries fall at the 25th percentile of poverty rates, representing nations with relatively successful poverty reduction. As documented by Ravallion (2016) in "The Economics of Poverty," countries at this quantile typically have effective social safety nets and inclusive economic institutions. The (PFI) coefficient here represents how private investment affects countries that have already achieved substantial poverty reduction. Looking at Q0.5, modest poverty countries, according to the World Bank's (2023) "Poverty and Shared Prosperity" report, countries at the median poverty level often have moderate poverty rates with functioning but incomplete poverty alleviation programs. The coefficient at this quantile demonstrates how (PFI) affects countries with average poverty challenges. Similarly, Q0.75 represents moderate poverty countries. These countries face significant poverty challenges. As noted by Banerjee and Duflo (2011) in "Poor Economics," they often struggle with multidimensional poverty issues requiring comprehensive approaches. The coefficient here indicates how (PFI) affects countries with substantial poverty levels. On the other hand, Q0.9 represents high poverty countries. The UN Development Programme's (2023) "Multidimensional Poverty Index" identifies these countries as having severe and persistent poverty issues, often compounded by conflict, institutional weakness, or environmental vulnerabilities. The (PFI) coefficient for this quantile shows investment effects in the most impoverished contexts.

As the distribution of (GNI) across quantiles, Q0.25 represents low-income countries. These countries fall at the 25th percentile of GNI per capita. As characterized by Acemoglu et al. (2014) in *Journal of Economic Growth*, these are typically lower-income economies with significant development challenges. The

(PFI) coefficient here represents how private investment affects income levels in relatively poor countries. Q0.5 represents modest-income countries and, according to the World Bank's (2023) "World Development Indicators,", countries at the median income level often include emerging economies and middle-income countries. The coefficient at this quantile demonstrates how (PFI) affects countries with average income levels. Q0.75 represents moderate-income countries and these countries, as classified in the IMF's (2023) "World Economic Outlook,", include advanced economies with sophisticated financial markets and institutions. The coefficient here indicates how (PFI) affects already wealthy nations. Q0.9 represents high-income countries and the OECD's (2023) "Economic Outlook" identifies these as the wealthiest nations, typically with advanced service-oriented economies and substantial accumulated capital. The (PFI) coefficient for this quantile shows investment effects in the highest-income contexts.

When we consider the models without interaction terms, the models provide a general overview of the impact of (PFI) across the distribution, without differentiating between income groups. These models allow for examining how the impact of (PFI) varies across different income groups at different points of the distribution. For example, in Table 9, model **M1** shows the effect of (PFI) on (POV) without interaction terms. We observe a statistically significant inversed relationship with a coefficient of -0.413* at Q 0.75. By considering **M3**, the effect of (PFI) on (GNI) without interaction terms, we see statistically significant and positive relationships in all quantiles. We now have a more nuanced understanding of how private funds raised by crowdfunding might affect poverty. In some models, (PFI) shows a significant effect on poverty reduction at the lower quantiles (e.g., Q 0.25), while the effect on (GNI) was significant across all quantiles. This suggests that (PFI), while it may have a more pronounced effect on reducing extreme poverty, its positive effect on income might not be limited only to extreme poverty.

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Table 9. *Quantile Regression - Goal 1 (No Poverty)*

	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Q 0.25					Q 0.75			
Net PFI Inflows	-0.024	-0.051	0.070**	0.045	-0.413*	-0.016	0.161**	0.036
	[0.028]	[0.084]	[0.014]	[0.031]	[0.234]	[0.067]	[0.029]	[0.034]
Exchange Rate		0.144		0.005		-0.180		0.019*
		[0.092]		[0.014]		[0.155]		[0.012]
Interest Rate		0.794**		-0.003		1.274**		0.055
		[0.354]		[0.064]		[0.339]		[0.054]
Natural Resources		-0.582**		-0.051**		1.128**		-0.014
		[0.240]		[0.025]		[0.492]		[0.039]
Education		0.696		-0.252*		2.210		-0.267**
		[0.793]		[0.129]		[1.371]		[0.104]
Inflation		-0.077		-0.072		0.209		0.116**
		[0.336]		[0.069]		[0.422]		[0.056]
Trade Openness		-0.085**		-0.001		-0.165**		0.003
		[0.026]		[0.005]		[0.053]		[0.004]
Constant	14.375**	5.939	-0.282**	1.238	32.369**	44.950**	3.871**	2.547**
	[0.405]	[10.558]	[0.110]	[1.659]	[1.780]	[16.614]	[0.127]	[1.266]
Q 0.50					Q 0.90			
Net PFI Inflows	-0.068	-0.045	0.078**	0.011	-0.043	-0.058	0.199**	0.023
	[0.142]	[0.074]	[0.019]	[0.032]	[0.494]	[0.144]	[0.051]	[0.060]
Exchange Rate		0.207**		-0.007		-0.311**		0.017
		[0.059]		[0.012]		[0.076]		[0.018]

Interest Rate	0.423		0.056		0.704**		0.086
	[0.293]		[0.045]		[0.340]		[0.085]
Natural Resources	0.045		-0.054		0.813**		-0.004
	[0.391]		[0.034]		[0.361]		[0.054]
Education	-0.287		-0.124		2.149**		-0.637**
	[0.548]		[0.108]		[0.989]		[0.189]
Inflation	0.480		0.011		0.376		0.199*
	[0.349]		[0.045]		[0.388]		[0.105]
Trade Openness	-0.099**		0.003		-0.255**		0.008
	[0.018]		[0.003]		[0.044]		[0.008]
Constant	21.412**	7.420	1.928**	3.038**	47.290**	75.476**	6.193**	5.842**
	[0.726]	[7.051]	[0.111]	[1.379]	[1.908]	[10.954]	[0.257]	[2.330]
Observations	976	240	3126	815	976	240	3126	815

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Following Hao and Naiman's (2007) approach in "Quantile Regression," analyzing coefficient patterns across quantiles reveal whether private investment has uniform effects on poverty reduction or if effects vary by existing poverty levels. Our findings align with Kraay's (2006) work in *The World Bank Economic Review* who demonstrated that the relationship between growth-enhancing factors (including investment) and poverty reduction is rarely uniform across different poverty levels. Our findings also align with Dollar and Kraay (2002) in *Journal of Economic Growth* who found that while growth generally benefits the poor, heterogeneous effects exist across poverty distributions that can only be captured through distributional analyses like quantile regression. Applying Powell's (2020) approach in *Review of Economic Studies* to quantile regression interpretation, heterogeneous coefficients across quantiles would suggest that (PFI)

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has different effects on (GNI) depending on existing income levels. Alfaro et al. (2004) in *Journal of International Economics* found that foreign investment's impact on economic prosperity varies significantly by absorption capacity, which often correlates with existing income levels, and our findings confirmed as much. Carkovic and Levine (2005) in "Does Foreign Direct Investment Accelerate Economic Growth?" demonstrated the importance of examining heterogeneous effects of investment across different economic development stages.

Crowdfunding demonstrates variable effects on poverty outcomes across different country income groups. While generally associated with poverty reduction, this relationship is more pronounced in low-income countries where crowdfunding appears to decrease the proportion of population living under national poverty lines. Similarly, crowdfunding's positive impacts on per capita GNI concentrate in upper-middle income countries. These patterns suggest that the benefits of crowdfunding depend critically on existing economic structures and institutional capacity. Education consistently emerges as a powerful poverty reduction tool across specifications, often exceeding (PFI) in impact. The findings indicate development strategies must be tailored to country income level as upper-middle income countries appear best positioned to leverage crowdfunding for development gains, while low-income countries may need stronger distributional mechanisms to ensure crowdfunding benefits reach the poor.

Goal7–Affordable and Clean Energy

Renewable energy–(REN)

Table 10. *Empirical Results - REN*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	-0.007	-0.085**	-0.086**	0.000	-0.093**	-0.094**	0.000	-0.093**	-0.094**
	[0.139]	[0.029]	[0.030]	[0.143]	[0.031]	[0.031]	[0.095]	[0.046]	[0.046]
Exchange Rate	0.209**	0.041**	0.041**	0.186**	0.037**	0.036**	0.186**	0.037	0.036

	[0.059]	[0.014]	[0.014]	[0.060]	[0.014]	[0.015]	[0.063]	[0.044]	[0.044]
Interest Rate	1.406**	-0.095	-0.086	1.606**	-0.136**	-0.118*	1.606**	-0.136	-0.118
	[0.231]	[0.060]	[0.061]	[0.241]	[0.069]	[0.069]	[0.247]	[0.230]	[0.229]
Natural Resources	0.773**	0.005	0.035	0.762**	-0.041	-0.004	0.762**	-0.041	-0.004
	[0.121]	[0.059]	[0.059]	[0.124]	[0.064]	[0.064]	[0.170]	[0.104]	[0.101]
Education	-2.532**	-0.262	-0.285	-2.601**	-0.171	-0.199	-2.601**	-0.171	-0.199
	[0.488]	[0.189]	[0.190]	[0.494]	[0.195]	[0.197]	[0.563]	[0.524]	[0.523]
Inflation	-0.544**	0.028	0.026	-0.542**	0.027	0.027	-0.542**	0.027	0.027
	[0.200]	[0.045]	[0.045]	[0.205]	[0.047]	[0.047]	[0.260]	[0.092]	[0.093]
Trade Openness	-0.092**	0.016	0.010	-0.087**	0.013	0.006	-0.087**	0.013	0.006
	[0.014]	[0.010]	[0.010]	[0.015]	[0.010]	[0.010]	[0.010]	[0.031]	[0.030]
Constant	18.380**	24.165**	27.559**	15.460**	24.513**	27.861**	15.460**	24.513**	27.861**
	[6.570]	[1.861]	[3.591]	[7.628]	[2.123]	[3.716]	[7.667]	[8.388]	[8.922]
Observations	911	911	911	911	911	911	911	911	911

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Table 11. *Empirical Results with Interactions - REN*

	Model 1	Model 2
Net PFI Inflows	-0.093**	-0.022
	[0.046]	[0.025]
Exchange Rate	0.036	0.026
	[0.044]	[0.041]
Interest Rate	-0.134	-0.121
	[0.229]	[0.209]
Natural Resources	-0.027	-0.020

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	[0.098]	[0.093]
Education	-0.194	-0.068
	[0.521]	[0.499]
Inflation	0.024	0.026
	[0.093]	[0.088]
Trade Openness	0.009	0.007
	[0.030]	[0.029]
Group ID	17.771**	
	[2.999]	
Group ID=2		10.971*
		[6.117]
Group ID=3		26.528**
		[8.525]
Group ID=4		65.929**
		[7.280]
Group ID=2 # Net PFI Inflows		-0.325**
		[0.131]
Group ID=3 # Net PFI Inflows		-0.767**
		[0.381]
Group ID=4 # Net PFI Inflows		-0.097
		[0.087]
Constant	-8.782	13.217
	[10.074]	[8.374]
Observations	911	911

Standard errors in brackets

$^{*} p < 0.1,\ ^{**} p < 0.05$

Net private investment inflows show a significant negative association (-0.094, p<0.05), as per Table10, with renewable energy shar of the energy consumption of a country. This statistically significant relationship means that, the more private investment crowdfunding brings into a country, the further the share

of renewable energy of its energy consumption decreases. The relationship persists even after controlling for variables such as (REX), (INT), (RES), (EDU), (INF), and (TRA). We then introduced interaction terms to the model, to verify If (PFI) affects (REN) the same way in all country income groups.

The interaction model shown in Table 11 provide critical insights into differences across income groups. High-income countries and low-income countries, according to the results, after adding the interaction terms, do not show statistically significant effect of (PFI) on (REN). Which suggests that crowdfunding impacts on the energy mix of high-income and low-income countries differ very little or none at all. As for upper-middle income and lower-middle-income countries, that effect is significant and negative indicating a substantially stronger negative association between crowdfunding and renewable energy. This suggests that as middle-income countries, when they attract crowdfunding investment funds, they experience more pronounced shifts toward conventional energy sources, potentially reflecting industrialization patterns that rely on fossil fuels.

Energy Intensity–(ENE)

Table 12. *Empirical Results - ENE*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	-0.034**	-0.004	-0.004	-0.034**	0.002	0.001	-0.034**	0.002	0.001
	[0.012]	[0.005]	[0.005]	[0.012]	[0.004]	[0.004]	[0.010]	[0.004]	[0.004]
Exchange Rate	-0.013**	-0.008**	-0.008**	-0.009*	-0.003	-0.003	-0.009	-0.003	-0.003
	[0.005]	[0.002]	[0.002]	[0.005]	[0.002]	[0.002]	[0.005]	[0.006]	[0.006]
Interest Rate	0.044**	0.058**	0.058**	0.022	-0.026**	-0.023**	0.022	-0.026	-0.023
	[0.020]	[0.010]	[0.010]	[0.021]	[0.010]	[0.010]	[0.023]	[0.023]	[0.022]

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Natural Resources	0.162**	0.017*	0.029**	0.163**	-0.016*	-0.002	0.163**	-0.016	-0.002
	[0.011]	[0.010]	[0.010]	[0.011]	[0.009]	[0.009]	[0.020]	[0.023]	[0.024]
Education	-0.021	-0.070**	-0.073**	-0.008	-0.016	-0.020	-0.008	-0.016	-0.020
	[0.043]	[0.033]	[0.033]	[0.043]	[0.028]	[0.028]	[0.051]	[0.060]	[0.059]
Inflation	0.024	0.032**	0.031**	0.029	0.028**	0.028**	0.029	0.028**	0.028**
	[0.018]	[0.008]	[0.008]	[0.018]	[0.007]	[0.007]	[0.025]	[0.011]	[0.011]
Trade Openness	-0.001	-0.005**	-0.005**	-0.001	-0.002	-0.003*	-0.001	-0.002	-0.003
	[0.001]	[0.002]	[0.002]	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]	[0.003]
Constant	5.350**	5.914**	6.038**	5.689**	6.584**	6.762**	5.689**	6.584**	6.762**
	[0.574]	[0.323]	[0.410]	[0.666]	[0.308]	[0.405]	[0.741]	[0.724]	[0.795]
Observations	927	927	927	927	927	927	927	927	927

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

The results presented in Table 12 and Table 13 show that there is no significant relationship between (PFI) and (ENE), meaning that crowdfunding-pooled private investment has no rea and direct effect on energy intensity in a country. The model with interaction terms reveals no significant differences in how crowdfunding affects energy intensity across income groups, though low-income countries show significantly higher baseline energy intensity, independent of crowdfunding effects. This indicates that while low-income countries have less efficient energy use overall, this inefficiency is not meaningfully affected by the flow of crowdfunding funds.

Table 13. *Empirical Results with Interactions - ENE*

	Model 1	Model 2
Net PFI Inflows	0.002	0.003
	[0.004]	[0.004]
Exchange Rate	-0.003	-0.003
	[0.006]	[0.006]
Interest Rate	-0.025	-0.025
	[0.023]	[0.022]
Natural Resources	-0.005	-0.004
	[0.023]	[0.023]
Education	-0.019	-0.014
	[0.059]	[0.060]
Inflation	0.028**	0.029**
	[0.011]	[0.011]
Trade Openness	-0.002	-0.002
	[0.003]	[0.003]
Group ID	1.124**	
	[0.401]	
Group ID=2		0.660
		[0.612]
Group ID=3		1.287
		[0.793]
Group ID=4		4.389**
		[1.665]
Group ID=2 # Net PFI Inflows		-0.014
		[0.017]
Group ID=3 # Net PFI Inflows		0.006
		[0.023]
Group ID=4 # Net PFI Inflows		-0.008
		[0.019]

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Constant	4.429**	5.819**
	[1.139]	[0.864]
Observations	927	927

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Quantile regression analysis reveals heterogeneous effects of (PFI) inflows on (REN) and (ENE) across different quantiles of the distribution. Q0.25 are countries that fall at the 25th percentile of renewable energy adoption. As noted by Popp et al. (2011) in their study published in the *Journal of Environmental Economics and Management*, countries at this quantile often face significant barriers to renewable adoption, including limited technical capacity and underdeveloped infrastructure. The coefficient for PFI here represents the impact of investment on countries still in early stages of energy transition. While countries at Q0.50, according to the International Renewable Energy Agency's (IRENA, 2022) "Renewable Energy Statistics" report, are at the median and typically have established renewable energy policies but face challenges in implementation. The (PFI) coefficient at this quantile demonstrates how investment affects countries with moderate renewable adoption. Q0.75 are the countries, as characterized by REN21's (2023) "Renewables Global Status Report," often have strong policy frameworks and established renewable markets. The coefficient here indicates how (PFI) affects countries already committed to renewables expansion. As for Q0.90, the World Bank's (2022) "Regulatory Indicators for Sustainable Energy (RISE)" identifies these countries as renewable energy leaders. The (PFI) coefficient for this quantile shows how investment affects already-advanced renewable energy markets.

As for energy intensity (ENE), Q0.25 represents low energy intensity/efficient countries. These countries demonstrate high energy efficiency. As documented by the International Energy Agency's (IEA, 2023) "Energy Efficiency Market Report," they typically have advanced economies with strict efficiency standards. The (PFI) coefficient here shows how investment affects already-efficient economies. Similarly, Q0.5 represents modest energy intensity countries. The World Energy Council's (2022) "Energy Trilemma Index" characterizes these

countries as having moderate efficiency levels, often with emerging efficiency policies. The coefficient at this quantile demonstrates how (PFI) affects countries with average energy efficiency. By the same token, Q0.75 represents moderate energy intensity countries. According to Stern (2012) in *The Energy Journal*, these countries often have industrial-based economies with significant efficiency improvement potential. The coefficient here indicates how (PFI) affects countries with substantial inefficiencies. Finally, Q0.9 represents high energy intensity/inefficient countries. The UN Industrial Development Organization's (UNIDO, 2023) industrial statistics identify these as typically developing economies with energy-intensive industries and limited efficiency measures. The (PFI) coefficient for this quantile shows investment effects in the least efficient contexts.

Table 14. *Quantile Regression - Goal 7 (Affordable and Clean Energy)*

	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Q 0.25					Q 0.75			
Net PFI Inflows	-0.035**	-0.033**	-0.213**	-0.065	-0.042**	-0.027**	-1.223**	-0.116
	[0.005]	[0.013]	[0.019]	[0.046]	[0.021]	[0.008]	[0.114]	[0.092]
Exchange Rate		-0.010**		0.060**		-0.030**		0.369**
		[0.004]		[0.026]		[0.011]		[0.130]
Interest Rate		0.033**		0.244		0.061		0.810*
		[0.016]		[0.195]		[0.044]		[0.421]
Natural Resources		0.130**		-0.325**		0.228**		2.042**
		[0.015]		[0.047]		[0.027]		[0.377]
Education		-0.037		-0.530		0.143		-2.754**
		[0.044]		[0.458]		[0.103]		[0.969]
Inflation		-0.034*		-0.100		0.030		0.511
		[0.020]		[0.127]		[0.044]		[0.442]
Trade Openness		-0.001		-0.034**		-0.003*		-0.110**

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		[0.001]		[0.005]		[0.002]		[0.012]
Constant	3.318**	4.241**	7.822**	8.931**	6.222**	7.205**	56.892**	13.935
	[0.041]	[0.470]	[0.294]	[3.734]	[0.105]	[1.348]	[1.471]	[14.350]
Q 0.50					Q 0.90			
Net PFI Inflows	-0.036**	-0.009	-0.591**	-0.186	0.100**	-0.044**	-0.383	-0.530**
	[0.009]	[0.010]	[0.047]	[0.118]	[0.020]	[0.017]	[0.324]	[0.107]
Exchange Rate		-0.019**		0.249**		-0.023**		0.153**
		[0.007]		[0.113]		[0.008]		[0.063]
Interest Rate		0.027		1.350**		0.074**		0.558
		[0.028]		[0.290]		[0.035]		[0.346]
Natural Resources		0.152**		0.833*		0.325**		2.479**
		[0.022]		[0.448]		[0.041]		[0.256]
Education		0.041		-3.867**		0.212*		-3.410**
		[0.064]		[1.013]		[0.118]		[0.688]
Inflation		0.010		0.109		0.007		0.159
		[0.019]		[0.416]		[0.044]		[0.255]
Trade Openness		-0.002**		-0.070**		-0.005**		-0.108**
		[0.001]		[0.012]		[0.002]		[0.012]
Constant	4.446**	5.662**	25.075**	14.982	8.750**	7.926**	81.538**	55.952**
	[0.054]	[0.651]	[0.792]	[11.294]	[0.197]	[1.189]	[0.704]	[9.241]
Observations	4008	943	3966	943	4008	943	3966	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Starting with model **M1**, Table 14, the effect of (PFI) on (REN) without inter-action terms, we found that there was a statistically significant inverse rela-tionship between (PFI) and (REN), in all quantiles except Q0.90. This suggests that, except for countries that has the largest renewable energy shares of its total energy consumption, crowdfunding had a negative impact on the share

of renewable energy of the rest of the countries. When we introduced interaction terms to model **M2**, we continued to observe a negative impact of (PFI) on (REN), except for Q0.50 where we see no such impact in countries that have a modest renewable energy share out of total energy consumption. The results for model **M3**, the effects of (PFI) on (ENE), reveal a negative and statistically significant relationship. Which means that in all quantiles, except for Q0.90, the more private investment funds raised by crowdfunding in a country the lower its energy intensity gets, and its use of energy becomes more efficient. In countries with a very high energy intensity, Q0.90, where the use of energy is inefficient, we see no such effect.

Comparing coefficients across quantiles aligns with findings from Brunnschweiler (2010) in *World Development*, who noted that the relationship between investment and renewable energy adoption varies significantly across different levels of existing renewable infrastructure. Following Koenker's (2005) approach to quantile regression interpretation, significant differences in coefficients across quantiles would suggest heterogeneous effects of investment on renewable energy adoption. Following Machado and Mata's (2005) approach in *Journal of Applied Econometrics*, comparing coefficients across quantiles reveals whether private investment has uniform effects on energy efficiency or if it varies by existing efficiency levels. Fisher-Vanden et al. (2004) in *The Review of Economics and Statistics* demonstrated that foreign investment effects on energy intensity are rarely uniform across efficiency distributions.

Crowdfunding demonstrates negative associations with renewable energy adoption, with particularly strong effects in middle-income countries compared to high-income countries. This suggests that current crowdfunding patterns may undermine clean energy transitions, especially in rapidly industrializing economies where fossil fuel infrastructure expansions are well established. Energy intensity shows no significant relationship with crowdfunding across any income group, indicating crowdfunding flows neither improve nor worsen energy efficiency. However, our quantile regression not only does it confirms the negative impact of crowdfunding's proxy on the use of renewable energy, but it also reveals that our crowdfunding proxy has a negative impact on energy intensity.

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This means that when we increase private investment funds flowing into a country via crowdfunding, we enhance its energy efficiency and help that country meet its SDG7. These findings suggest targeted policy interventions are needed to redirect crowdfunding toward renewable energy, particularly in middle-income countries where current crowdfunding patterns appear most detrimental to clean energy adoption

Decent Work and Economic Growth

Economic growth–(ECG)

Table 15. *Empirical Results - ECG*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	0.020	0.006	0.019	0.022	0.030	0.030	0.022	0.030	0.030
	[0.025]	[0.027]	[0.026]	[0.021]	[0.023]	[0.022]	[0.018]	[0.026]	[0.026]
Exchange Rate	-0.037**	-0.080**	-0.058**	-0.020**	-0.047**	-0.033**	-0.020**	-0.047**	-0.033**
	[0.010]	[0.012]	[0.011]	[0.009]	[0.011]	[0.010]	[0.010]	[0.016]	[0.014]
Interest Rate	0.027	-0.115**	-0.062	0.000	-0.225**	-0.120**	0.000	-0.225**	-0.120*
	[0.041]	[0.055]	[0.049]	[0.037]	[0.052]	[0.044]	[0.042]	[0.061]	[0.062]
Natural Resources	-0.039*	0.119**	-0.007	-0.038**	0.102**	-0.008	-0.038**	0.102**	-0.008
	[0.022]	[0.054]	[0.030]	[0.019]	[0.048]	[0.026]	[0.014]	[0.044]	[0.020]
Education	-0.196**	0.033	-0.131	-0.210**	-0.002	-0.163	-0.210**	-0.002	-0.163
	[0.087]	[0.177]	[0.122]	[0.075]	[0.147]	[0.101]	[0.075]	[0.177]	[0.120]
Inflation	-0.021	-0.054	-0.045	0.020	0.005	0.012	0.020	0.005	0.012
	[0.036]	[0.042]	[0.039]	[0.031]	[0.035]	[0.033]	[0.035]	[0.034]	[0.035]
Trade Openness	0.001	-0.029**	-0.003	0.001	-0.014*	-0.003	0.001	-0.014*	-0.003
	[0.003]	[0.009]	[0.004]	[0.002]	[0.008]	[0.003]	[0.002]	[0.008]	[0.003]
Constant	6.622**	12.835**	8.985**	4.678**	9.269**	6.865**	4.678**	9.269**	6.865**

	[1.154]	[1.717]	[1.357]	[1.140]	[1.588]	[1.275]	[1.177]	[1.896]	[1.783]
Observations	943	943	943	943	943	943	943	943	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Table 16. *Empirical Results with Interactions - ECG*

	Model 1	Model 2
Net PFI Inflows	0.031	-0.004
	[0.026]	[0.014]
Exchange Rate	-0.034**	-0.028**
	[0.014]	[0.014]
Interest Rate	-0.137**	-0.131**
	[0.063]	[0.060]
Natural Resources	-0.016	-0.019
	[0.019]	[0.020]
Education	-0.156	-0.231**
	[0.118]	[0.116]
Inflation	0.012	0.011
	[0.036]	[0.036]
Trade Openness	-0.002	-0.000
	[0.003]	[0.002]
Group ID	0.266	
	[0.217]	
Group ID=2		0.301
		[0.700]
Group ID=3		0.248
		[0.563]
Group ID=4		-1.537
		[1.022]
Group ID=2 # Net PFI Inflows		0.143**

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		[0.043]
Group ID=3 # Net PFI Inflows		0.213**
		[0.090]
Group ID=4 # Net PFI Inflows		0.410**
		[0.186]
Constant	6.549**	6.294**
	[1.787]	[1.678]
Observations	943	943

Standard errors in brackets

$^{*} p < 0.1,$ $^{**} p < 0.05$

According to Table 15 and Table 16, our crowdfunding proxy shows no significant relationship with economic growth in high-income countries in the baseline Model1. However, the interaction Model2 reveals pronounced differences across income groups. While the baseline effect remains statistically insignificant (-0.004) for high-income countries, all other country groups show positive and statistically significant effect of (PFI) on (ECG): upper-middle income (0.143, p<0.05), lower-middle income (0.213, p<0.05), and low-income (0.410, p<0.05). These interaction coefficients reveal a clear pattern: the effects of crowdfunding on economic growth progressively strengthen as country income level decreases, with low-income countries showing the strongest positive relationship between crowdfunding and economic growth. This suggests that while higher-income economies may have reached diminishing returns on investment, developing economies can translate additional crowdfunding into substantial growth gains.

Unemployment–(UNE)

Table 17. *Empirical Results - UNE*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	-0.014	-0.025[*]	-0.026[*]	-0.007	-0.019	-0.019	-0.007	-0.019	-0.019
	[0.028]	[0.013]	[0.013]	[0.029]	[0.013]	[0.013]	[0.021]	[0.014]	[0.014]
Exchange Rate	-0.080[**]	-0.003	-0.004	-0.084[**]	-0.006	-0.007	-0.084[**]	-0.006	-0.007
	[0.012]	[0.006]	[0.006]	[0.012]	[0.006]	[0.006]	[0.013]	[0.018]	[0.018]
Interest Rate	0.234[**]	0.161[**]	0.162[**]	0.234[**]	0.139[**]	0.139[**]	0.234[**]	0.139[**]	0.139[**]
	[0.047]	[0.026]	[0.026]	[0.050]	[0.030]	[0.030]	[0.052]	[0.053]	[0.053]
Natural Resources	0.018	-0.025	-0.023	0.016	-0.047[*]	-0.042	0.016	-0.047	-0.042
	[0.025]	[0.026]	[0.025]	[0.025]	[0.028]	[0.026]	[0.034]	[0.028]	[0.026]
Education	0.192[*]	-0.017	-0.006	0.177[*]	-0.043	-0.032	0.177	-0.043	-0.032
	[0.101]	[0.085]	[0.083]	[0.102]	[0.086]	[0.084]	[0.110]	[0.155]	[0.150]
Inflation	-0.119[**]	0.008	0.005	-0.130[**]	0.004	0.000	-0.130[**]	0.004	0.000
	[0.041]	[0.020]	[0.020]	[0.042]	[0.021]	[0.020]	[0.043]	[0.034]	[0.033]
Trade Openness	-0.004	-0.017[**]	-0.014[**]	-0.005	-0.017[**]	-0.015[**]	-0.005[**]	-0.017	-0.015[*]
	[0.003]	[0.004]	[0.004]	[0.003]	[0.005]	[0.004]	[0.002]	[0.010]	[0.008]
Constant	14.087[**]	8.669[**]	8.408[**]	14.850[**]	9.403[**]	9.179[**]	14.850[**]	9.403[**]	9.179[**]
	[1.322]	[0.821]	[0.968]	[1.549]	[0.924]	[1.063]	[1.476]	[2.779]	[2.710]
Observations	927	927	927	927	927	927	927	927	927

Standard errors in brackets

[*] $p < 0.1$, [**] $p < 0.05$

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Table 18. *Empirical Results with Interactions - UNE*

	Model 1	Model 2
Net PFI Inflows	-0.020	-0.015
	[0.014]	[0.016]
Exchange Rate	-0.007	-0.007
	[0.018]	[0.018]
Interest Rate	0.143**	0.141**
	[0.053]	[0.053]
Natural Resources	-0.036	-0.038
	[0.025]	[0.025]
Education	-0.035	-0.042
	[0.150]	[0.153]
Inflation	0.001	-0.001
	[0.033]	[0.034]
Trade Openness	-0.016*	-0.015*
	[0.009]	[0.009]
Group ID	-0.886*	
	[0.468]	
Group ID=2		2.774**
		[1.345]
Group ID=3		-0.691
		[1.448]
Group ID=4		-2.913**
		[1.148]
Group ID=2 # Net PFI Inflows		-0.005
		[0.064]
Group ID=3 # Net PFI Inflows		-0.048
		[0.081]
Group ID=4 # Net PFI Inflows		-0.048
		[0.040]

Constant	11.026**	8.772**
	[2.906]	[2.795]
Observations	927	927

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Based on the results shown in Table 17 and Table 18, our crowdfunding's proxy shows no statistically significant relationship with unemployment across any income group, suggesting its employment benefits may operate indirectly through interest rate (INT) and trade openness (TRA), rather than directly affecting labor markets. These findings indicate that while crowdfunding can support economic growth, particularly in lower-income countries, complementary policies may be necessary to ensure this growth translates into quality employment opportunities.

Looking at Table 19, we may understand (ECG) at the different quantiles of the distribution as follows. Q0.25 represents low growth countries. Countries with growth rates at the 25th percentile often face structural challenges. As noted by Acemoglu and Robinson (2012) in "Why Nations Fail," these may include institutional weaknesses. The (PFI) coefficient here represents investment effects in slower-growing economies. Q0.5 represents modest growth countries. The IMF's (2023) "World Economic Outlook" characterizes these countries as having moderate but stable growth trajectories. The coefficient at this quantile demonstrates how (PFI) affects countries with average growth rates. Q0.75 represents moderate growth countries. According to the World Bank's (2022) "Global Economic Prospects," these countries often have dynamic economies with favorable investment climates. The coefficient here indicates how (PFI) affects already-growing economies. Q0.9 represents high growth countries. These represent the fastest-growing economies, often emerging markets experiencing rapid development as documented by UNCTAD's (2023) "World Investment Report." The (PFI) coefficient for this quantile shows investment effects in high-performing economies.

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As for (UNE), Q0.25 represents low unemployment countries. These countries have relatively tight labor markets. The OECD's (2023) "Employment Outlook" characterizes them as having effective labor market institutions and policies. The (PFI) coefficient here represents investment effects in countries with already low unemployment. Q0.5 represents modest unemployment countries. According to the ILO's (2023) "World Employment and Social Outlook," these countries typically have moderate unemployment levels with functioning but imperfect labor markets. The coefficient at this quantile demonstrates how (PFI) affects countries with average unemployment conditions. Q0.75 represents moderate unemployment countries. These countries face significant labor market challenges. As noted by Blanchard and Wolfers (2000) in *The Economic Journal*, they often have structural rigidities in their labor markets. The coefficient here indicates how (PFI) affects countries with substantial unemployment issues. Q0.9 represents high unemployment countries. The World Bank's (2022) "Jobs Diagnostics" identifies these countries as having severe labor market dysfunction, often with significant informal sectors. The (PFI) coefficient for this quantile shows investment effects in the most challenging labor market contexts.

Table 19. *Quantile Regression - Goal 8 (Decent Work and Economic Growth)*

	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	Q 0.25				Q 0.75			
Net PFI Inflows	0.059**	0.031	0.012*	0.012	0.135**	0.034	0.088*	-0.044
	[0.011]	[0.029]	[0.007]	[0.011]	[0.021]	[0.041]	[0.051]	[0.032]
Exchange Rate		-0.012		-0.031**		0.006		-0.100**
		[0.015]		[0.008]		[0.012]		[0.017]
Interest Rate		-0.077		0.143**		0.037		0.250**
		[0.066]		[0.039]		[0.046]		[0.116]
Natural Resources		0.001		-0.132**		-0.051**		0.079
		[0.025]		[0.015]		[0.019]		[0.050]
Education		-0.157		0.085		-0.325**		0.289
		[0.121]		[0.061]		[0.086]		[0.188]
Inflation		0.046		-0.021		0.135**		-0.133*

		[0.067]		[0.037]		[0.038]		[0.079]
Trade Openness		-0.001		-0.003**		0.006*		-0.003
		[0.004]		[0.001]		[0.003]		[0.004]
Constant	-0.160*	2.392	3.653**	7.335**	3.876**	3.943**	10.606**	17.255**
	[0.084]	[1.662]	[0.063]	[0.938]	[0.087]	[1.371]	[0.195]	[2.108]
	Q 0.50				Q 0.90			
Net PFI Inflows	0.089**	0.035	0.022	-0.002	0.167**	0.047	0.078	-0.187**
	[0.015]	[0.025]	[0.018]	[0.014]	[0.027]	[0.047]	[0.051]	[0.051]
Exchange Rate		0.001		-0.056**		0.019		-0.183**
		[0.009]		[0.008]		[0.020]		[0.023]
Interest Rate		-0.001		0.199**		0.042		0.799**
		[0.040]		[0.038]		[0.072]		[0.152]
Natural Resources		-0.014		-0.046		-0.079**		0.163**
		[0.018]		[0.066]		[0.023]		[0.061]
Education		-0.234**		0.080		-0.665**		0.133
		[0.076]		[0.118]		[0.167]		[0.316]
Inflation		0.078*		-0.044		0.295**		-0.357**
		[0.045]		[0.046]		[0.094]		[0.090]
Trade Openness		0.003		-0.003**		0.006		0.017**
		[0.002]		[0.002]		[0.005]		[0.008]
Constant	1.879**	2.567**	6.059**	11.067**	6.007**	5.572**	16.646**	27.546**
	[0.072]	[1.064]	[0.136]	[0.973]	[0.136]	[2.340]	[0.346]	[3.079]
Observations	4246	943	3979	928	4246	943	3979	928

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Quantile regression analysis, Table 19, reveals heterogeneous effects of our crowdfunding's proxy on (ECG) and (UNE) across different quantiles of the distribution. **M1**and **M3** are the models without interaction terms, they provide a general overview of the impact of (PFI) across the distribution, without differentiating between income groups. **M2** and **M4** are the model with interaction

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terms, they allow for examining how the impact of (PFI) varies across different income groups at different points of the distribution. **M1** shows a positive and statistically significant impact of (PFI) on (ECG) across all quantiles of the distribution, regardless if income group. One the other hand, **M3** shows a positive impact of (PFI) on (UNE) in Q0.25 (countries with the lowest unemployment rates among the labor force) and Q0.75 (countries with moderate unemployment rates among the labor force). At these points of the distribution, funds raised through crowdfunding seem to increase the unemployment rate among the labor force.

Crowdfunding demonstrates heterogeneous growth effects that progressively strengthen as country income levels decrease. Low-income countries show the strongest positive relationship between crowdfunding and growth, followed by lower-middle and upper-middle income countries. This suggests crowdfunding may offer particularly valuable growth dividends in less developed economies where capital constraints are most binding. However, crowdfunding shows no significant relationship with unemployment across any income group, suggesting its employment benefits may operate indirectly through growth rather than directly affecting labor markets. These findings indicate that while crowdfunding can support economic growth, particularly in lower-income countries, complementary policies may be necessary to ensure this growth translates into quality employment opportunities.

Buchinsky's (1994) approach in *Econometrica* to quantile regression interpretation suggests examining the pattern of coefficients across quantiles to identify potential threshold effects. Borensztein et al. (1998) in *Journal of International Economics* found that foreign investment effects on growth can vary significantly by existing growth rates and absorptive capacity. This was in line with what we found. Koenker and Hallock (2001) in *Journal of Economic Perspectives* suggest that comparing coefficients across quantiles can reveal whether variables have uniform effects across outcome distributions. Feenstra and Hanson (1997) in *The Quarterly Journal of Economics* found that foreign investment effects on labor markets vary significantly by existing labor market conditions. Which was also in line with our findings.

Climate Action

Air pollution-(AIR)

Table 20. *Empirical Results - AIR*

	POLS	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	-0.113	-0.009	-0.013	-0.138*	0.007	0.001	-0.138**	0.007	0.001
	[0.078]	[0.030]	[0.030]	[0.080]	[0.030]	[0.031]	[0.053]	[0.017]	[0.017]
Exchange Rate	0.169**	-0.037**	-0.033**	0.166**	-0.024*	-0.018	0.166**	-0.024	-0.018
	[0.033]	[0.013]	[0.013]	[0.034]	[0.013]	[0.014]	[0.033]	[0.042]	[0.041]
Interest Rate	0.867**	0.382**	0.392**	0.947**	0.279**	0.311**	0.947**	0.279*	0.311**
	[0.121]	[0.057]	[0.057]	[0.125]	[0.062]	[0.063]	[0.138]	[0.153]	[0.149]
Natural Resources	0.647**	0.091*	0.131**	0.627**	0.058	0.130**	0.627**	0.058	0.130*
	[0.063]	[0.055]	[0.053]	[0.064]	[0.058]	[0.056]	[0.088]	[0.068]	[0.077]
Education	-2.465**	-0.085	-0.208	-2.442**	0.056	-0.129	-2.442**	0.056	-0.129
	[0.261]	[0.187]	[0.185]	[0.263]	[0.183]	[0.184]	[0.307]	[0.277]	[0.259]
Inflation	-0.128	-0.066	-0.069*	-0.126	-0.065	-0.065	-0.126	-0.065	-0.065
	[0.104]	[0.041]	[0.041]	[0.107]	[0.041]	[0.043]	[0.122]	[0.093]	[0.092]
Trade Openness	-0.002	-0.018*	-0.019*	0.001	-0.018*	-0.020**	0.001	-0.018	-0.020
	[0.008]	[0.011]	[0.010]	[0.008]	[0.011]	[0.010]	[0.006]	[0.021]	[0.018]
Constant	11.941**	27.669**	27.777**	6.341	27.791**	27.492**	6.341*	27.791**	27.492**
	[3.667]	[1.759]	[2.252]	[4.200]	[1.913]	[2.281]	[3.770]	[5.052]	[5.203]
Observations	841	841	841	841	841	841	841	841	841

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

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Table 21. *Empirical Results with Interactions - AIR*

	Model 1	Model 2
Net PFI Inflows	0.005	0.006
	[0.017]	[0.013]
Exchange Rate	-0.018	-0.019
	[0.041]	[0.041]
Interest Rate	0.281*	0.294*
	[0.149]	[0.152]
Natural Resources	0.091	0.091
	[0.074]	[0.075]
Education	-0.129	-0.130
	[0.262]	[0.272]
Inflation	-0.067	-0.073
	[0.092]	[0.093]
Trade Openness	-0.013	-0.012
	[0.017]	[0.017]
Group ID	6.332**	
	[1.646]	
Group ID=2		2.582
		[3.458]
Group ID=3		12.201**
		[4.653]
Group ID=4		19.980**
		[5.767]
Group ID=2 # Net PFI Inflows		0.069
		[0.060]
Group ID=3 # Net PFI Inflows		-0.015
		[0.182]
Group ID=4 # Net PFI Inflows		-0.255**
		[0.124]
Constant	14.330**	21.886**
	[6.016]	[5.605]
Observations	841	841

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Looking at the results shown in Table 20 and Table 21, our crowdfunding's proxy shows no statistically significant overall relationship with air pollution in high-income countries. However, **Model 2**, the interaction model reveals that in low-income countries (PFI) have a statistically significant negative impact on (AIR) (-0.255, p<0.05). Which indicates that, in these countries, crowdfunding associates with reduced air pollution levels compared to high-income countries. This counterintuitive finding suggests that in the least developed economies, crowdfunding may support cleaner production technologies or less pollution-intensive sectors compared to existing economic activities. On another note, lower-middle-income and low-income countries show significantly higher baseline pollution levels independent of crowdfunding effects.

Co2 emissions–(CO2)

Table 22. *Empirical Results – CO2*

	POLs	FE	RE	POLSt	FEt	REt	POLStr	FEtr	REtr
Net PFI Inflows	0.022	0.005	0.005	0.019	0.006	0.006	0.019	0.006	0.006
	[0.026]	[0.004]	[0.004]	[0.026]	[0.004]	[0.004]	[0.021]	[0.005]	[0.005]
Exchange Rate	-0.060**	0.005**	0.005**	-0.055**	0.006**	0.006**	-0.055**	0.006	0.006
	[0.011]	[0.002]	[0.002]	[0.011]	[0.002]	[0.002]	[0.012]	[0.005]	[0.005]
Interest Rate	-0.412**	0.010	0.009	-0.485**	-0.000	-0.003	-0.485**	-0.000	-0.003
	[0.043]	[0.008]	[0.008]	[0.045]	[0.009]	[0.009]	[0.037]	[0.019]	[0.019]
Natural Resources	0.085**	0.015*	0.014*	0.084**	0.011	0.010	0.084**	0.011	0.010
	[0.023]	[0.008]	[0.008]	[0.023]	[0.008]	[0.009]	[0.034]	[0.015]	[0.015]
Education	0.104	0.045*	0.045*	0.133	0.058**	0.058**	0.133	0.058	0.058
	[0.091]	[0.025]	[0.025]	[0.091]	[0.026]	[0.026]	[0.092]	[0.045]	[0.046]
Inflation	0.018	-0.004	-0.004	0.028	-0.001	-0.001	0.028	-0.001	-0.001
	[0.038]	[0.006]	[0.006]	[0.038]	[0.006]	[0.006]	[0.036]	[0.008]	[0.008]
Trade Openness	0.006**	-0.007**	-0.006**	0.004	-0.007**	-0.006**	0.004*	-0.007	-0.006

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	[0.003]	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.002]	[0.004]	[0.004]
Constant	11.244**	4.659**	4.377**	12.577**	4.613**	4.324**	12.577**	4.613**	4.324**
	[1.208]	[0.245]	[0.624]	[1.394]	[0.278]	[0.542]	[1.511]	[0.899]	[1.180]
Observations	943	943	943	943	943	943	943	943	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

According to Table 22 and Table 23, our crowdfunding's proxy (PFI) demonstrates no statistically significant relationship with CO2 emissions in either high-income countries or in the interactions model, across other income groups. However, all country groups show significantly lower baseline emissions compared to the high-income reference group, with progressively stronger negative coefficients as income level decreases. This pattern reflects the established relationship between development level and carbon emissions, though crowdfunding investments themselves don't significantly affect these patterns.

Table 23. *Empirical Results with Interactions – CO2*

	Model 1	Model 2
Net PFI Inflows	0.006	0.008
	[0.005]	[0.006]
Exchange Rate	0.006	0.006
	[0.005]	[0.005]
Interest Rate	-0.001	-0.000
	[0.019]	[0.019]
Natural Resources	0.015	0.015
	[0.014]	[0.015]
Education	0.056	0.060
	[0.045]	[0.045]
Inflation	-0.001	0.000
	[0.008]	[0.008]

Trade Openness	-0.007	-0.007*
	[0.004]	[0.004]
Group ID	-3.197**	
	[0.501]	
Group ID=2		-4.722**
		[1.368]
Group ID=3		-7.277**
		[1.272]
Group ID=4		-8.811**
		[1.228]
Group ID=2 # Net PFI Inflows		-0.021
		[0.020]
Group ID=3 # Net PFI Inflows		0.003
		[0.021]
Group ID=4 # Net PFI Inflows		0.000
		[0.008]
Constant	10.921**	8.377**
	[1.824]	[1.577]
Observations	943	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Looking at Table 24, we can understand the distribution of (AIR) across all quantiles as follows. Q0.25 represents low pollution countries. These countries have relatively clean air. The WHO's (2023) "Air Quality Database" characterizes them as having effective environmental regulations and enforcement. The (PFI) coefficient here represents investment effects in countries with good air quality. Q0.5 represents modest pollution countries. According to the UN Environment Programme's (2022) "Global Environment Outlook," these countries have moderate pollution levels with developing environmental regulation frameworks.

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The coefficient at this quantile demonstrates how (PFI) affects countries with average pollution levels. Q0.75 represents moderate pollution countries. These countries face significant air quality challenges. As noted by Greenstone and Hanna (2014) in *American Economic Review,* they often have rapid industrialization without adequate environmental controls. The coefficient here indicates how (PFI) affects countries with substantial pollution issues. Q0.9 represents high pollution countries. The State of Global Air Report (2023) identifies these countries as having severe air quality problems, often with dense urban populations and heavy industry. The (PFI) coefficient for this quantile shows investment effects in the most polluted contexts.

As for (CO_2), Q0.25 represents low emission countries. These countries have relatively low carbon footprints. The Global Carbon Project's (2023) annual report characterizes them as having either less carbon-intensive economies or lower development levels. The (PFI) coefficient here represents investment effects in low-emission contexts. Q0.5 represent modest emission countries. According to the IEA's (2023) "CO2 Emissions from Fuel Combustion," these countries have moderate emission levels with varying commitment to climate policies. The coefficient at this quantile demonstrates how (PFI) affects countries with average emission levels. Q0.75 represent moderate emission countries). These countries face significant carbon challenges. As noted by Stern (2007) in "The Economics of Climate Change," they often have carbon-intensive industrial bases. The coefficient here indicates how (PFI) affects countries with substantial emission issues. Q0.9 represents high emission countries). The Climate Action Tracker (2023) identifies these countries as having extremely carbon-intensive economies, often with high fossil fuel dependency. The (PFI) coefficient for this quantile shows investment effects in the highest-emitting contexts.

Table 24. *Quantile Regression - Goal 13 (Climate Action)*

	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Q 0.25					Q 0.75			
Net PFI Inflows	-0.010	-0.075	0.006**	0.015	-0.074**	-0.074**	0.000	0.053
	[0.008]	[0.072]	[0.002]	[0.018]	[0.025]	[0.031]	[0.002]	[0.043]
Exchange Rate		0.120**		-0.012**		0.140**		-0.069**
		[0.029]		[0.006]		[0.030]		[0.021]
Interest Rate		0.719**		-0.091**		1.187**		-0.508**
		[0.119]		[0.021]		[0.183]		[0.060]
Natural Resources		0.407**		-0.060**		1.097**		0.061
		[0.061]		[0.009]		[0.200]		[0.081]
Education		-1.370**		0.083**		-2.969**		0.306*
		[0.221]		[0.035]		[0.334]		[0.185]
Inflation		-0.031		0.006		-0.105		0.126*
		[0.083]		[0.015]		[0.193]		[0.065]
Trade Openness		0.016**		0.012**		-0.016**		0.003
		[0.006]		[0.002]		[0.005]		[0.003]
Constant	15.714**	4.031	0.695**	2.017**	32.538**	20.252**	6.473**	13.524**
	[0.267]	[2.859]	[0.029]	[0.794]	[0.828]	[2.720]	[0.146]	[2.386]
Q 0.50					Q 0.90			
Net PFI Inflows	-0.051**	-0.032	0.009**	-0.001	-0.107**	-0.238**	-0.006	0.040
	[0.013]	[0.036]	[0.003]	[0.031]	[0.029]	[0.054]	[0.007]	[0.029]
Exchange Rate		0.150**		-0.063**		0.212**		-0.094**
		[0.033]		[0.009]		[0.064]		[0.031]
Interest Rate		0.806**		-0.228**		0.805**		-0.590**
		[0.129]		[0.024]		[0.254]		[0.073]
Natural Resources		0.549**		-0.019		1.711**		0.395**
		[0.077]		[0.013]		[0.191]		[0.124]
Education		-1.246**		0.344**		-3.483**		0.391
		[0.354]		[0.078]		[0.539]		[0.275]

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Inflation		-0.095		-0.024		0.355		-0.018
		[0.100]		[0.036]		[0.265]		[0.074]
Trade Openness		0.001		0.015**		-0.028**		-0.002
		[0.005]		[0.002]		[0.006]		[0.004]
Constant	22.690**	6.284*	2.440**	8.392**	53.266**	22.915**	11.382**	19.170**
	[0.210]	[3.558]	[0.084]	[1.111]	[1.060]	[5.964]	[0.288]	[3.109]
Observations	3668	882	4265	943	3668	882	4265	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Quantile regression analysis, Table 24, reveals heterogeneous effects of our crowdfunding's proxy on (AIR) and (CO2) across different quantiles of the distribution. **M1** and **M3** are the models without interaction terms, they provide a general overview of the impact of (PFI) across the distribution, without differentiating between income groups. **M2** and **M4** are the model with interaction terms, they allow for examining how the impact of (PFI) varies across different income groups at different points of the distribution. Except in Q0.25 (countries with the least levels of air pollution), **M1** shows consistent and statistically significant negative impact of our crowdfunding's proxy on (AIR) across the distribution. Which means that, in most countries, crowdfunding would have a significant effect in reducing air pollution. After including interaction terms, **M2** revealed that, in Q0.25 (countries with the least levels of air pollution) and Q0.50 (countries with modest levels of air pollution), we do not observe a statistically significant effect of (PFI) on (AIR). However, in Q0.75 (countries with moderate levels of air pollution) and Q0.90 (countries with the highest levels of air pollution), that negative impact of (PFI) on (AIR) exists and it is even stronger than previously seen in **M1**. This still confirms the positive effect of crowdfunding on pollution reduction in most countries. **M3** shows that, in Q0.25 (countries with lowest levels of CO2 emissions) and Q0.50 (countries with modest levels of CO2 emissions), our crowdfunding's proxy has a statistically significant positive impact on (CO2). Which means that crowdfunding investments might contribute to an increase in CO2 emissions in these countries.

Crowdfunding shows minimal overall impact on climate indicators in high-income countries but demonstrates some beneficial effects specifically in low-income countries, where it associates with reduced air pollution compared to the reference group. This suggests crowdfunding in least developed economies may support less pollution-intensive economic activities than existing production methods. The absence of significant relationships between crowdfunding and CO_2 emissions across all income groups indicates that current crowdfunding patterns neither substantially worsen nor improve carbon intensity. These findings suggest that while crowdfunding isn't currently a major driver of climate outcomes, targeted policy frameworks could potentially leverage crowdfunding flows to support climate goals, particularly in Low-Income Countries where some positive environmental associations already exist.

Following Chernozhukov and Hansen's (2006) approach in *Econometrica*, comparing coefficients across quantiles can reveals whether investment has uniform effects on pollution or if it varies by existing pollution levels. Cole et al. (2008) in *Journal of Development Economics* found that foreign investment effects on pollution often follow an environmental Kuznets curve pattern across different pollution levels. Contrary to Cole, our findings support a consistent effect of our crowdfunding's proxy on pollution reduction across all quantiles. Applying Powell's (2016) approach in *Annual Review of Economics* to quantile regression interpretation suggests examining the pattern of coefficients across quantiles to identify potential non-linear relationships. Frankel and Rose (2005) in *Review of Economics and Statistics* found that foreign investment effects on emissions can vary significantly by existing emission levels and regulatory frameworks, which was in line with our findings.

Table 25 and Table 26 offer a summary of all models and results that have been presented and discussed throughout this research, for ease of viewing and comparing results side-by-side. We thought it might be useful to serve as a conclusive summary of our methods and outcomes.

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Table 25. *Empirical Results with Interactions (Part 1)*

	M1	M2	M3	M4	M5	M6	M7	M8
	POV	POV + Int.	GNI	GNI + Int.	REN	REN + Int.	ENE	ENE + Int.
Net PFI Inflows	-0.041**	-0.042**	0.004	-0.029*	-0.093**	-0.022	0.002	0.003
	[0.021]	[0.015]	[0.028]	[0.016]	[0.046]	[0.025]	[0.004]	[0.004]
Exchange Rate	-0.079	-0.113*	-0.052**	-0.043**	0.036	0.026	-0.003	-0.003
	[0.060]	[0.064]	[0.016]	[0.016]	[0.044]	[0.041]	[0.006]	[0.006]
Interest Rate	0.282	0.341	-0.109	-0.081	-0.134	-0.121	-0.025	-0.025
	[0.284]	[0.276]	[0.075]	[0.078]	[0.229]	[0.209]	[0.023]	[0.022]
Natural Resources	-0.009	0.033	0.013	0.009	-0.027	-0.020	-0.005	-0.004
	[0.212]	[0.232]	[0.027]	[0.025]	[0.098]	[0.093]	[0.023]	[0.023]
Education	-1.555**	-1.540**	-0.107	-0.154	-0.194	-0.068	-0.019	-0.014
	[0.780]	[0.747]	[0.131]	[0.126]	[0.521]	[0.499]	[0.059]	[0.060]
Inflation	-0.237	-0.328*	-0.095*	-0.094*	0.024	0.026	0.028**	0.029**
	[0.183]	[0.173]	[0.052]	[0.051]	[0.093]	[0.088]	[0.011]	[0.011]
Trade Openness	0.089	0.080	0.002	0.004	0.009	0.007	-0.002	-0.002
	[0.061]	[0.057]	[0.005]	[0.004]	[0.030]	[0.029]	[0.003]	[0.003]
Group ID	8.986**		0.553**		17.771**		1.124**	
	[2.374]		[0.270]		[2.999]		[0.401]	
Group ID=2		10.966**		0.081		10.971*		0.660
		[4.411]		[0.907]		[6.117]		[0.612]
Group ID=3		18.551**		0.622		26.528**		1.287
		[5.796]		[0.728]		[8.525]		[0.793]
Group ID=4		12.166		0.045		65.929**		4.389**
		[10.036]		[0.794]		[7.280]		[1.665]
Group ID=2 # Net PFI Inflows		0.293**		0.254**		-0.325**		-0.014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		[0.129]		[0.098]		[0.131]		[0.017]
Group ID=3 # Net PFI Inflows		-0.705		0.169		-0.767**		0.006
		[0.438]		[0.121]		[0.381]		[0.023]
Group ID=4 # Net PFI Inflows		4.930**		0.263		-0.097		-0.008
		[1.513]		[0.190]		[0.087]		[0.019]
Constant	23.219*	34.858**	8.342**	7.782**	-8.782	13.217	4.429**	5.819**
	[13.142]	[11.659]	[2.007]	[1.804]	[10.074]	[8.374]	[1.139]	[0.864]
Observations	246	246	821	821	911	911	927	927

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Table 26. *Empirical Results with Interactions (Part 2)*

	M9	M10	M11	M12	M13	M14	M15	M16
	ECG	ECG + Int.	UNE	UNE + Int.	AIR	AIR + Int.	CO2	CO2 + Int.
Net PFI Inflows	0.031	-0.004	-0.020	-0.015	0.005	0.006	0.006	0.008
	[0.026]	[0.014]	[0.014]	[0.016]	[0.017]	[0.013]	[0.005]	[0.006]
Exchange Rate	-0.034**	-0.028**	-0.007	-0.007	-0.018	-0.019	0.006	0.006
	[0.014]	[0.014]	[0.018]	[0.018]	[0.041]	[0.041]	[0.005]	[0.005]
Interest Rate	-0.137**	-0.131**	0.143**	0.141**	0.281*	0.294*	-0.001	-0.000
	[0.063]	[0.060]	[0.053]	[0.053]	[0.149]	[0.152]	[0.019]	[0.019]
Natural Resources	-0.016	-0.019	-0.036	-0.038	0.091	0.091	0.015	0.015
	[0.019]	[0.020]	[0.025]	[0.025]	[0.074]	[0.075]	[0.014]	[0.015]
Education	-0.156	-0.231**	-0.035	-0.042	-0.129	-0.130	0.056	0.060
	[0.118]	[0.116]	[0.150]	[0.153]	[0.262]	[0.272]	[0.045]	[0.045]
Inflation	0.012	0.011	0.001	-0.001	-0.067	-0.073	-0.001	0.000
	[0.036]	[0.036]	[0.033]	[0.034]	[0.092]	[0.093]	[0.008]	[0.008]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trade Openness	-0.002	-0.000	-0.016*	-0.015*	-0.013	-0.012	-0.007	-0.007*
	[0.003]	[0.002]	[0.009]	[0.009]	[0.017]	[0.017]	[0.004]	[0.004]
Group ID	0.266		-0.886*		6.332**		-3.197**	
	[0.217]		[0.468]		[1.646]		[0.501]	
Group ID=2		0.301		2.774**		2.582		-4.722**
		[0.700]		[1.345]		[3.458]		[1.368]
Group ID=3		0.248		-0.691		12.201**		-7.277**
		[0.563]		[1.448]		[4.653]		[1.272]
Group ID=4		-1.537		-2.913**		19.980**		-8.811**
		[1.022]		[1.148]		[5.767]		[1.228]
Group ID=2 # Net PFI Inflows		0.143**		-0.005		0.069		-0.021
		[0.043]		[0.064]		[0.060]		[0.020]
Group ID=3 # Net PFI Inflows		0.213**		-0.048		-0.015		0.003
		[0.090]		[0.081]		[0.182]		[0.021]
Group ID=4 # Net PFI Inflows		0.410**		-0.048		-0.255**		0.000
		[0.186]		[0.040]		[0.124]		[0.008]
Constant	6.549**	6.294**	11.026**	8.772**	14.330**	21.886**	10.921**	8.377**
	[1.787]	[1.678]	[2.906]	[2.795]	[6.016]	[5.605]	[1.824]	[1.577]
Observations	943	943	927	927	841	841	943	943

Standard errors in brackets

* $p < 0.1$, ** $p < 0.05$

Conclusion

This analysis reveals that crowdfunding, represented by (PFI), impacts sustainable development indicators differently across country income groups. The effectiveness of crowdfunding as a mechanism to achieve sustainable development goals varies substantially based on countries' development stage and institutional capacity. For Goal 1 (No Poverty), crowdfunding shows promise

primarily in high-income and upper-middle income countries where it contributes to poverty reduction and income growth respectively. However, in low-income countries, crowdfunding paradoxically associates with increased poverty despite stronger economic growth effects, suggesting serious distributional challenges. This indicates that crowdfunding alone cannot ensure inclusive development without appropriate institutional frameworks. Nevertheless, our findings conclude that crowdfunding would help many countries achieve this SDG.

For Goal 7 (Affordable and Clean Energy), crowdfunding currently appears to undermine progress, particularly in middle-income countries where it associates with significant reductions in renewable energy adoption. This suggests current crowdfunding mechanisms may favor conventional energy investments over sustainable alternatives, potentially creating lock-in effects that complicate future energy transitions. However, our research also found a positive effect of crowdfunding on efficient use of energy, which might help many countries reach this SDG faster. For Goal 8 (Decent Work and Economic Growth), crowdfunding demonstrates increasingly positive impacts on economic growth as country income levels decrease, with the strongest effects in low-income countries. However, these economic growth effects do not translate to employment improvements across any income group, indicating a disconnect between financial flows and labor market outcomes. Our research found crowdfunding instrumental in achieving this SDG. For Goal 13 (Climate Action), crowdfunding shows minimal impacts across all income groups, but uniquely associates with reduced air pollution in low-income countries. This suggests potential for targeted environmental benefits in specific developmental contexts, though broader climate impacts remain limited. Ultimately, we found that crowdfunding was useful in achieving this SDG as well.

Multiple stakeholders can benefit from these findings. For instance, policymakers and international development organizations gain a more nuanced understanding of how crowdfunding impacts different sustainable development dimensions across different countries. This enables more targeted interventions that leverage crowdfunding's strengths while mitigating potential negative

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consequences. Similarly, crowdfunding platforms and impact investors can utilize these insights to better design their approaches for different market segments. Understanding the variable effects across country groups allows for more responsible investment strategies tailored to specific development challenges. Civil society organizations advocating for sustainable development can use these findings to engage more effectively with both policymakers and financial actors, highlighting opportunities to strengthen positive impacts while addressing potential pitfalls. Researchers studying sustainable finance can benefit from this analysis by gaining deeper insights into the mechanisms through which alternative financing affects different dimensions of sustainability, providing a foundation for more targeted future research. Additionally, local communities and enterprises seeking to utilize crowdfunding can better understand potential benefits and risks within their specific development context, informing more strategic approaches to capital mobilization.

These heterogeneous effects across development stages necessitate tailored policy frameworks for different country groups. For example, high-income countries would benefit from policies that redirect crowdfunding toward sustainable sectors, particularly renewable energy where current effects are negative. This could include preferential tax treatment for sustainability-focused crowdfunding platforms, regulatory frameworks that facilitate green crowdfunding, and public-private matching programs for environmentally beneficial projects. By the same token, upper-middle income countries occupy a critical position where crowdfunding effectively supports income growth but potentially reinforces unsustainable development patterns. These countries should implement integrated policy frameworks that preserve crowdfunding's economic benefits while steering investments toward sustainable alternatives. Sustainable finance taxonomies, environmental impact disclosure requirements for crowdfunding platforms, and transition finance frameworks could help align crowdfunding with long-term sustainability goals.

Lower-middle income countries face pronounced negative environmental impacts from crowdfunding alongside moderate growth benefits. These countries need stronger policy guardrails to prevent locking into carbon-intensive

development pathways. Policies could include concessional finance for renewable projects, technical assistance programs that help sustainable enterprises access crowdfunding, and regulatory frameworks that incorporate environmental criteria into investment approval processes. Low-income countries experience the strongest growth dividends from crowdfunding but simultaneously face increased poverty and inequality. These countries require comprehensive institutional reforms that ensure crowdfunding benefits reach marginalized populations. This includes strengthening property rights for disadvantaged groups, improving financial literacy, developing inclusive digital infrastructure, and establishing social protection mechanisms that better distribute growth benefits. The existing positive association between crowdfunding and reduced air pollution in these countries provides a foundation to build upon for environmental policy.

Across all country groups, educational investment consistently demonstrates strong poverty-reducing effects, often exceeding crowdfunding's impact. This underscores the importance of maintaining robust education funding alongside financial innovation to achieve sustainable development goals. Particularly in lower-middle and Low-Income countries, crowdfunding mechanisms specifically targeted at educational infrastructure and accessibility could strengthen this critical pathway to poverty reduction. These targeted approaches recognize that crowdfunding is not a universal solution but rather a context-dependent tool that requires careful calibration to effectively advance sustainable development goals across different country groups.

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Contribution Rates and Conflicts of Interest

Ethical Statement	The authors is declare that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited
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Data Collection	SS (70%), AFA (0%), RN (30%)
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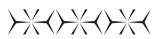
Is Bitcoin Haram in Sharia?
A Methodological Critique
of the Prohibition Fatwa

Essa Al-Mansouri

Abstract: This article critically evaluates the Sharia legitimacy of Bitcoin by applying Usul al-Fiqh—the foundational principles of Islamic jurisprudence—to several influential fatwas that prohibit it. Despite stemming from sincere concerns, many such fatwas rely on incomplete factual understanding, unverified analogies, or secondary policy considerations rather than explicit textual or consensus-based evidence. Consequently, these rulings risk conflating genuine harms (fraud, volatility, illicit use) with Bitcoin's inherent characteristics, which classical fiqh frameworks may otherwise recognize as permissible if carefully regulated. Drawing on examples of fatwas that deem Bitcoin permissible, the study demonstrates how thorough subject comprehension and methodologically robust legal derivation (ijtihad) often yield more nuanced conclusions. It further underscores that well-established Qur'anic and Prophetic principles—such as avoiding excessive uncertainty (*gharar*) and upholding wealth preservation—need not preclude thoughtful, evidence-based engagement with emerging financial technologies. Concluding that clear methodological grounding and accurate technology assessment are indispensable, the paper advocates ongoing dialogue between Sharia scholars, economists, and technical experts to ensure balanced rulings that protect Muslims' interests while fostering innovation.

Keywords: Bitcoin, Islamic Finance, Cryptocurrencies, Sharia, Usul al-Fiqh, Fatwas, Halal, Haram

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Introduction

Bitcoin's rapid rise has pushed it to the forefront of financial innovation, making it not only the first successful cryptocurrency but also the most significant by nearly every measure—adoption, market capitalization, and real-world impact. Far from a mere technological novelty, Bitcoin has reshaped how individuals, institutions, and even nation-states conceive of money and digital assets. Its core invention—a decentralized, transparent, and tamper-resistant ledger called the blockchain—represents a major shift in how secure value transfer can be conducted. In this sense, Bitcoin stands as a milestone in both technology and finance, meaning that misunderstanding its fundamentals can easily lead to oversimplifications and, as this paper will illustrate, potentially flawed Sharia rulings.

Within the Islamic context, such misunderstandings come with high stakes. Many Sharia scholars and jurists have declared Bitcoin forbidden (haram) (Meera, 2018; Mustafa, 2023), often citing concerns about volatility, speculation, and the absence of a central authority. Meanwhile, economists like Sifedean Ammous (2018, 2023) hold that Bitcoin's design—which restricts supply, ensures transparency, and operates without central-bank-driven riba—might in fact render it more halal than certain fiat currencies. Against the backdrop of these polarized views, it becomes evident that any ruling on Bitcoin's Sharia status should rest on a precise understanding of its technological and economic attributes.

Contrary to the idea that Bitcoin is purely theoretical in Islamic finance, it is already being seriously contemplated and, in some cases, actively employed across the Muslim world. Institutions and individuals alike have begun exploring how Bitcoin can support various practices, including zakat (charitable giving), sadaqa (donations), mahr (dowry), waqf (endowments), inheritance, and other contractual arrangements that require recognizing Bitcoin as property (Aysan & Al-Saudi, 2023; Baudier et al., 2023; Farhan & Saiban, 2024; Kamis et al., 2022; Rosele et al., 2025). The International Islamic Fiqh Academy (IIFA) of the Organization of Islamic Cooperation, the highest Sharia jurisprudence authority globally, is still looking into the issue with much sincerity and caution

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(IIFA, 2019), a situation parallels the one the IIFA faced when determining the permissibility of fiat currencies (IIFA, 1986). As Bitcoin's adoption grows, clarifying its Sharia standing is more than an academic exercise; it is a practical necessity..

In the Middle East, North Africa, and Southeast Asia, economic pressures such as inflation and currency devaluation have pushed many toward alternative asset classes (Aysan, 2025; Bhimani et al., 2022). In response, bodies such as the Indonesian Ulema Council (MUI) have prohibited Bitcoin on grounds of speculative risk (Hidayat, 2023; Mustafa, 2023). Meanwhile, jurists in Turkey and Saudi Arabia have also issued differing opinions (Al-Farouqi, 2024), creating a patchwork of rulings that sow confusion among Muslims and policymakers, and potentially stifle beneficial blockchain innovations..

Hence, this paper addresses a key question: Is Bitcoin truly prohibited by Sharia, or are the prohibition verdicts based on inadequacy of jurisprudential methods? With Bitcoin's global usage continuing apace, a methodologically sound Sharia perspective is urgently needed. A robust Sharia analysis is therefore indispensable for guiding Muslim communities as they consider adopting this technology. This study employs Usul al-Fiqh, the foundational methodology by which Islamic jurists derive legal rulings from the Qur'an, Sunnah. A major difficulty arises when fatwas (jurisdic opinion) prohibiting Bitcoin omit rigorous evaluation of Bitcoin's technical and economic fundamentals, jumping straight to concerns about speculation, gambling, or riba without careful analysis.

Following the methodological framework outlined in methodology section, this paper evaluates Bitcoin's Sharia fatwas according to Usul al-Fiqh principles. First, it conducts Textual Examination (Nusus), exploring possible analogies within Qur'anic or Sunnah (Prophetic sources). Next, in the Application of Ijma' and Qiyas, it considers whether explicit textual rulings or consensus (Ijma') exist; if not, it investigates whether legitimate analogy (Qiyas) can be drawn from established monetary and property rulings. After that, the study proceeds to an Evaluation of Supplementary Sources, examining how other sources and methods like maslahah (public interest), 'urf (customs), and sadd al-dhara'i (blocking means to harm) have been applied, and whether these secondary principles

bridge genuine gaps or simply substitute for missing foundational proofs. Finally, it measures outcomes against Sharia objectives (Maqasid al-Sharia), ensuring that any conclusions regarding Bitcoin align with Sharia's higher objectives—particularly preserving wealth—in a rapidly evolving digital landscape.

Although I engage with several contemporary fatwas on cryptocurrency, this paper focuses primarily on Bitcoin—the original, largest, and arguably most influential cryptocurrency (Aysan et al., 2021) —whose features are frequently oversimplified by non-professionals. I do not delve into stablecoins, central bank digital currencies (CBDCs), NFTs, or the other major cryptocurrencies such as Etherium, especially after the Proof of Steak transition. Given the vast differences between cryptocurrencies, focus on Bitcoin enhances the robustness of this study and avoids conclusions that cannot be generalized to other cryptocurrencies.

This study brings several distinct contributions to the Islamic finance discourse by integrating a rigorous Usul al-Fiqh approach with a substantive understanding of Bitcoin's design and real-world uses. First, it highlights how harnessing Usul al-Fiqh as a formal methodology—still relatively uncommon in English-language analyses—can be systematically applied to questions like cryptocurrency. Second, it clarifies misunderstood concepts in English-language Sharia and Islamic finance literature, such as the nuanced distinction between gharar (excessive uncertainty) and legitimate risk, the difference between money and property, and whether states hold exclusive mandates to issue currency. Third, it underscores the importance of bridging theory and practice, showing that real-world applications of Bitcoin (including zakat distribution, dowry, and inheritance) require conscious, coherent, consensus-driven rulings. By examining classical Islamic jurisprudence alongside cutting-edge financial technology, the study suggests a route to progress that respects both traditional legal principles and modern innovations. Finally, the analysis focuses on fatwas and ijtihad (scholarly jurisprudence) that exhibit high methodological rigor and originate from recognized Sharia jurists working within an Usul al-Fiqh framework. Less specialized viewpoints—those outside the purview of qualified Sharia jurists—are deliberately omitted, preserving a focus on rulings carrying the greatest doctrinal relevance.

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Reaching clarity on whether Bitcoin is Sharia-compliant represents a pivotal moment for Islamic finance. If Sharia jurists thoroughly assess Bitcoin's attributes and apply Usul al-Fiqh principles correctly, Muslim societies might benefit from a financial instrument capable of fostering efficiency, transparency, and cross-border integration—much like the forward-looking stance once adopted for fiat currencies. Conversely, if rulings remain rooted in partial technical insights, confusion could dominate, ultimately undermining an innovation with transformative potential. By examining how fatwas are formulated and whether they align with classical jurisprudential standards, this paper calls for a more transparent, evidence-based conversation about technology's evolving role in Islamic finance.

This paper is divided into four main parts. Following the introduction, the Literature Review contrasts works from non-Sharia scholars—who often emphasize economic and practical considerations—with studies by juristic Sharia experts grounded in Usul al-Fiqh. The Methodology section then explains how in Usul al-Fiqh classical Islamic legal principles (Qur'an, Sunnah, Ijma', and Qiyas) serve as the lens through which various Bitcoin prohibition fatwas are critically examined, highlighting the importance of accurate fact-finding. In the Results and Discussion, each selected fatwa is systematically analyzed to uncover methodological strengths and gaps, paying particular attention to whether they rely on complete technical knowledge or align with foundational scriptural evidence. Finally, the Conclusion integrates these findings, reiterates the necessity for robust, interdisciplinary collaboration, and proposes a path forward for Sharia scholars to navigate emerging financial technologies without compromising essential Islamic jurisprudential principles.

Literature Review

Bitcoin Sharia Literature by Non-Sharia Scholars

A considerable segment of Islamic finance research on Bitcoin and cryptocurrencies comes from scholars who, while well-intentioned and often highly specialized in fields like economics or finance, are not formally trained in Usul al-Fiqh. Consequently, their analyses can overlook certain nuances in Islamic

jurisprudence. For example, Othman et al. (2023) categorize Muslim scholars' and experts' opinions on cryptocurrencies into three main stances—those who permit, those who prohibit, and those who remain undecided. Their review highlights that some experts view cryptocurrencies favorably if they meet particular requirements (e.g., regulatory compliance, asset backing, or gold-backing), whereas others forbid them for reasons like speculation, lack of a robust legal framework, or alignment with personal religious convictions. Meanwhile, undecided scholars acknowledge crypto's potential but advocate further investigation, reflecting the diverse range of viewpoints in this space. Hassan et al. (2023) similarly note that Bitcoin's decentralized nature can be seen as an advantage under Sharia principles by eliminating a single issuer and circumventing conventional monetary control. Nonetheless, this very autonomy raises questions about whether Bitcoin meets the stability criteria typically emphasized in Islamic finance, leading to a cautious or skeptical approach among Muslims wary of volatility and managerial risks..

A number of studies underscore the prohibition of Bitcoin and other cryptocurrencies, grounded in concerns that they do not fully satisfy Sharia principles for money. Balarabe et al. (2024) note that financial institutions in certain regions have been restricted from dealing with cryptocurrencies, due to their unresolved legal and Sharia status. This regulatory vacuum often fosters uncertainty, which in turn fuels debates about whether Bitcoin is halal (permissible) or haram (forbidden). Meera (2018) contends that since most cryptocurrencies are not asset-backed, they cannot be considered Sharia-compliant. Moreover, he points to the prevalence of gharar (excessive uncertainty) and maysir (gambling) in cryptocurrency markets, arguing that these elements conflict with the objectives of Islamic finance. In a similar vein, Naya et al. (2024) conclude that the risks of speculation and the lack of regulatory oversight make cryptocurrencies nonconforming with Sharia principles, thereby rendering them haram based on their speculative nature and potential to facilitate illegal activities.

Some works on cryptocurrency approach the issue from the perspective of Maqasid al-Shari'ah (Sharia Objectives), which include, among other elements, the preservation of wealth. Al-Farouqi (2024) emphasizes the role of maslahah

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(public interest) in shaping cryptocurrency fatwas across Muslim-majority countries, with certain jurisdictions pursuing more permissive stances to encourage economic growth and financial inclusion. By contrast, other regions take a more conservative approach out of concern for safeguarding financial stability and preventing harm.

Ghoni et al. (2022) suggest that preventing harm takes precedence over realizing benefits when it comes to cryptocurrency investments, underscoring an Islamic legal maxim that can underpin more prohibitive rulings. Meanwhile, Ibrahim et al. (Ibrahim et al., 2024) question whether cryptocurrencies meet the classical criteria for Islamic money, especially given their volatility and potential for speculation. As a result, many Muslims remain cautious, anticipating slower adoption of cryptocurrencies in jurisdictions that strictly uphold these principles.

Nonetheless, some studies propose that blockchain, the technology underpinning Bitcoin, aligns with Sharia goals like transparency, security, and anti-monopoly (Aljamos et al., 2022). Others highlight the possibility of gold-backed or asset-backed cryptocurrencies as a way to reconcile Islamic principles with innovation (Rani et al., 2024). These conversations reflect an ongoing effort within Islamic finance to integrate Maqasid al-Shari'ah when evaluating novel financial instruments.

Although the literature identifies a range of issues—from absence of tangible backing to speculation—these studies primarily assess Bitcoin and other cryptocurrencies through an Islamic finance lens that may not always apply rigorous Usul al-Fiqh methodologies. Consequently, they capture the perspectives of well-intentioned scholars who nonetheless might overlook or simplify certain jurisprudential subtleties.

Bitcoin Literature by Juristic Sharia Scholars

Usul al-Fiqh, the methodology governing how jurists derive legal rulings from the Qur'an, Sunnah, Ijma' (consensus), and Qiyas (analogy), offers a foundational framework for analyzing contemporary issues in Islamic law (Al-Alwani et al., 2003; Kamali, 2003). Its structured approach is designed to ensure that

Sharia rulings rest on established principles. Despite its importance, much of the English-language discourse on Bitcoin in Islamic finance does not rigorously employ this discipline. Consequently, many analyses revolve around macroeconomic or practical viewpoints—such as volatility, legality, and market dynamics—without deeply exploring relevant jurisprudential tools.

In essence, the broader literature on Usul al-Fiqh underscores the need to move beyond generic assessments of compliance and instead engage with the sources of Islamic law in a systematic way. Through this lens, questions about whether Bitcoin qualifies as māl (property), whether its use involves prohibited gharar, and how analogical reasoning might place Bitcoin alongside earlier forms of currency become central to the inquiry.

In contrast to non-jurist discussions, some Sharia specialists apply Usul al-Fiqh directly to the question of cryptocurrency permissibility. Kirchner (2020) provides both historical and modern examinations of commodity, property, and money concepts, reflecting on the typical critiques—volatility, speculation, and lack of intrinsic value—leveled at digital currencies.

Other works examine the positions of recognized Sharia jurists on Bitcoin. For instance, Sahalan and Samsudin (2023) highlight Mohd Daud Bakar's detailed approach, in which he finds no solid legal cause ('illah) to prohibit cryptocurrencies. Bakar's view rests on Al-'Urf (custom), sadd al-dhara'i' (blocking harm), and fatḥ al-dhara'i' (facilitating benefits), suggesting that innovation in financial technology can be permissible if it does not contravene established Sharia principles. Similarly, Abu-Bakar (2018) presents a Sharia analysis of Bitcoin rooted in defining Bitcoin as property and differentiating its inherent characteristics from how users might misuse it.

Abozaid (2020) also addresses how the absence of real asset-backing and official oversight complicates the classification of cryptocurrencies. Nevertheless, he acknowledges that the question of whether these instruments fall under the same rules as conventional currencies—particularly regarding riba (usury)—requires further juristic scrutiny. This focus on grounded, textually based reasoning stands apart from more generalized Islamic finance perspectives that primarily emphasize speculation, volatility, and regulatory concerns.

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Overall, the literature reveals a gap between conventional Islamic finance discussions—often led by well-intentioned but non-jurist experts—and the more specialized Usul al-Fiqh analysis conducted by trained jurists. While the former group frequently addresses practical aspects like risk and regulatory policy, they may not fully deploy the nuances of Sharia legal reasoning, occasionally resulting in oversimplified conclusions. The latter group, by contrast, employs classical juristic methods to interpret cryptocurrencies in light of primary legal sources and recognized jurisprudential principles, offering a more textually grounded perspective.

This gap underscores the importance of a study that systematically applies Usul al-Fiqh to evaluate Bitcoin's permissibility. Doing so helps clarify whether prohibition fatwas indeed meet the standards of rigorous Sharia methodology or rely too heavily on secondary considerations such as maslahah without first establishing a solid legal basis. By highlighting both sets of literature—non-Sharia specialists and trained jurists—this review underlines the need for bridging macro-level Islamic finance insights with jurisprudential precision, thus ensuring that Sharia rulings on Bitcoin and related innovations rest on firm, methodologically sound foundations.

Methodology

This study applies Usul al-Fiqh, the foundational discipline that governs how Islamic jurists derive legal rulings from Sharia sources (Kamali, 2003). By foregrounding this classical framework, the research seeks to assess whether fatwas prohibiting Bitcoin meet the rigorous standards of Islamic legal derivation from agreed sources such as the Qur'an, Sunnah (Prophetic traditions), Ijmāʿ (consensus), and Qiyās (analogical reasoning) or whether they invoke supplementary principles—like maṣlaḥah (public interest) or sadd al-dharāʾiʿ (blocking means)—without first demonstrating clear textual or analogical evidence for prohibition.

Usul al-Fiqh (literally, "the principles of Islamic jurisprudence") provides the interpretive tools and legal maxims that guide jurists in deducing rulings on novel issues (Al-Alwani et al., 2003). In particular, it enjoins a systematic examination

of direct textual evidence (of scriptural nature) from the Qur'an and Sunnah, followed by efforts to identify an existing scholarly consensus (ijmāʿ) or relevant analogy (qiyās). When such definitive guidance is absent, jurists consider recognized secondary principles, such as maṣlaḥah (public welfare), ʿurf (custom), or sadd al-dharāʾiʿ (preventing harm). This structured approach ensures that legal opinions rest on a solid chain of reasoning back to authoritative textual sources rather than primarily on utilitarian or policy-based arguments.

An additional layer of insight for understanding how Usul al-Fiqh operates can be drawn by likening it to hermeneutics, a discipline that explores the theory and methodology of textual interpretation (Kazemi-Moussavi & Mavani, 2023). While hermeneutics originally emerged in the context of biblical exegesis in Western scholarship, its principles have broadened to encompass the interpretation of secular texts, legal doctrines, and philosophical writings. Fundamentally, both Usul al-Fiqh and hermeneutics revolve around extracting meaning from authoritative texts—whether divine revelation or other foundational sources—and applying that meaning to current or future contexts. Positioning Usul al-Fiqh alongside hermeneutics in the Methodology section thus highlights the interpretive depth and conceptual discipline inherent in Islamic jurisprudence. By framing the analysis of Bitcoin's permissibility within a tradition that shares notable parallels to hermeneutical inquiry, the paper underscores the scholarly seriousness with which new rulings must be approached. It also invites readers unfamiliar with Islamic legal theory to appreciate that interpreting Sharia texts involves a robust, multi-layered methodology—one that resembles recognized interpretive traditions in other scholarly domains.

Given the polarized nature of current scholarly discourse on Bitcoin—some declaring it ḥarām outright, others viewing it as potentially more ḥalāl than certain fiat currencies—it is essential to place each prohibition fatwa under close juristic scrutiny. In this way, the study highlights whether the classical methodology was followed thoroughly or whether certain fatwas rely on incomplete premises, such as equating Bitcoin's volatility with gambling or conflating decentralization with outright impermissibility.

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To achieve a focused and methodologically robust analysis, this research examines fatwas and ijtihād documents issued by recognized Sharia jurists who operate within an Usul al-Fiqh framework. Earlier sections noted that many non-specialist commentators—well-intentioned economists, finance scholars, or business experts—have offered opinions on Bitcoin's Sharia status without the precise juristic grounding that Usul al-Fiqh demands. While their works were reviewed in the Literature Review section, they were excluded from the formal dataset to maintain a clear emphasis on the rulings carrying the greatest doctrinal weight.

This selection strategy stems from the earlier observation that some documented fatwas lacked a clear demonstration of foundational juristic reasoning. By concentrating on thoroughly reasoned opinions, the study can better evaluate whether classical jurisprudential protocols were indeed followed. Moreover, focusing on jurists recognized for their methodological rigor helps clarify the degree to which existing prohibitions on Bitcoin align with or depart from well-established Islamic legal standards.

Following the collection and translation of these fatwas, each document was subjected to a **qualitative content analysis** driven by Usul al-Fiqh constructs. First, the text was examined to identify any direct textual citations (Qur'an or Sunnah) and how these were interpreted or applied. Next, the presence or absence of ijmā' or qiyās was noted, with careful attention to whether the analogical cause ('illah) was clearly and convincingly established.

Where the fatwa appealed to secondary principles such as maṣlaḥah (public welfare) or 'urf (custom), the analysis explored whether these tools were invoked in a manner consistent with classical jurisprudential guidelines. Specifically, the study assessed whether the jurist had attempted to locate a textual or analogical basis prior to moving on to maslahah-based arguments—one of the key stages mandated by Usul al-Fiqh methodology.

Finally, the rulings were evaluated against Sharia Objectives (Maqasid al-Sharia). Although Sharia Objectives are often cited to justify policy-level or pragmatic considerations, the fundamental principle remains that these objectives must never contradict primary textual sources or firmly established legal reasoning.

This step was therefore essential for interpreting how each fatwa balanced technical concerns about Bitcoin (e.g., volatility, speculation, perceived risk of money laundering) with classical imperatives such as preventing harm and preserving wealth.

The logic of this methodology paved the way for the Results section, in which each selected fatwa's reasoning was systematically compared. The final dataset, while limited to a select group of fatwas, maintains a depth of juristic rigor required for evaluating whether the prohibition of Bitcoin genuinely reflects Sharia fundamentals or rests on incomplete or tangential arguments. As such, the results derived from this dataset are intended to offer a specialized, yet pointed, critique of existing fatwas and a model for more disciplined Sharia analysis of emerging financial technologies. Fatwas offering explicit, well-documented textual or analogical proofs were set against those relying on broad appeals to uncertainty (gharar) or speculation (maysir) without correlating them to a recognized ʿillah. The subsequent Discussion elaborated on these findings, highlighting how certain prohibition fatwas might hinge on misinterpretations of Bitcoin's technical features or revolve around secondary concerns (e.g., potential misuse in illegal activities) rather than validated, textually grounded ḥarām criteria.

Results

Selected Permission Fatwa

While this paper is not about the Bitcoin Halal fatwa, the permissability opinion is worth noting to contextualize subsequent analysis. Guided by the Usul al-Fiqh methodology, several prominent Sharia scholars and Ijtihad and Fatwa bodies have declared Bitcoin permissible under Sharia.

Mufti Muhammad Abu-Bakar (Blossom Labs, Indonesia) is often cited as one of the first to declare Bitcoin and cryptocurrencies bona fida permissible (Abu-Bakar, 2018). He started his reasoning by arguing that Bitcoin meets the Sharia definition of property (māl), emphasizing its widespread acceptance, utility as a medium of exchange, and demonstrable value. He maintains that Bitcoin's volatility or speculative misuse does not inherently render it impermissible, just

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as other permissible commodities also experience price fluctuations. By adequately distinguishing between Bitcoin's inherent characteristics and misuse by individuals, he effectively applies traditional juristic principles, making his argument persuasive from an Usul al-Fiqh perspective.

Dr. Mohd Daud Bakar, a prominent Malaysian Sharia scholar and chairman of Amanie Advisors, strongly supports Bitcoin's permissibility as property (māl), viewing it through the lens of 'urf (customary practice) and fath al-dhara'i (opening beneficial means). Baker is known to have made some of the best counterarguments to the prohibition scholars (N. M. Ibrahim et al., 2024; Sahalan & Samsudin, 2023). He explicitly rejects claims that Bitcoin mining equates to gambling, instead characterizing it as a legitimate competitive economic activity. Bakar argues that Bitcoin does not contain prohibitive gharar (excessive uncertainty) or qimar (gambling), as its inherent risks and fluctuations are comparable to other permissible investment assets. Bakar's position stands out due to its robust conceptual accuracy and sophisticated jurisprudential reasoning.

The Sharia Advisory Council (SAC) of Malaysia's Securities Commission has broadly accepted digital assets, including Bitcoin, provided they comply with clear and transparent regulations ensuring minimal uncertainty and sufficient investor protection (SAC, 2020)at its 233rd meeting held on 29 June 2020 and its 234th meeting held on 20 July 2020, resolved the following:\n\n(A. This approach highlights regulatory clarity, risk management, and consumer protection, aligning well with classical jurisprudence emphasizing preventing harm (dharrar) while enabling beneficial innovations (maslahah). Its perspective effectively bridges traditional jurisprudential principles and modern economic realities, providing regulatory clarity that aligns with classical jurisprudence's spirit and objectives.

Based on the permissability fatwas above, it is notable that the permissibility of Bitcoin requires not as much Ijtihad to prove in Usul al Fiqh. In Usul al-Fiqh, particularly under the principles of Istishāb (presumption of continuity) and ʿUrf (customary practice), proving Bitcoin's permissibility is straightforward. Istishāb presumes the permissibility of all non-worship actions and objects unless explicitly prohibited by authoritative textual evidence. Thus, in the

absence of such explicit evidence from primary sources (Qur'an and Sunnah), Bitcoin transactions would naturally be deemed permissible by default. Similarly, according to the principle of ʿUrf, the classification of something as property (māl) does not necessarily require rigorous textual evidence. Rather, it suffices for an asset to be broadly accepted and customarily treated by people as having value, being traded, and being beneficial. Bitcoin meets these conditions given its widespread global acceptance, trade, and economic utility.

Given the default rules of permisability in the case of Bitcoin, the burden of rigorous proof rests on those declaring it impermissible. Therefore, and given the clear lack of juristic consensus (Ijmaa), those who insist to declare Bitcoin impermissible (haram) must provide clear, robust textual evidence or authoritative analogical reasoning (Qiyās grounded explicitly in primary sources) to override these fundamental jurisprudential principles. Given the textual analysis of the prohibition fatwas, many jurists recognize such requirements, pushing them to find reasons for the prohibition instead of relying on general Sharia principles forbidding new technology or objects, for example. Without authoritative evidence or analogical reasoning firmly grounded in primary sources, some scholars prohibiting Bitcoin may opt to rely largely on their reputation, weakening their fatwas' jurisprudential foundation.

Selected prohibition Fatwa

In this study, I have deliberately chosen certain prohibition fatwas for detailed analysis due to their significant influence, authoritative origins, and wide dissemination among Muslim communities globally. Each selected fatwa comes from a prominent Islamic jurisprudential authority or scholarly council whose opinions significantly impact Muslim public perception, regulatory decisions, and scholarly debates about Bitcoin and cryptocurrencies. By critically examining these influential fatwas, I aim to highlight key methodological strengths and weaknesses in their jurisprudential reasoning, particularly regarding their application of Usul al-Fiqh principles. Furthermore, these fatwas collectively represent diverse geographical and institutional contexts, thus providing a comprehensive perspective on how different Islamic authorities approach contemporary financial innovations. This analytical selection ultimately aims to enrich

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the ongoing scholarly conversation, offering nuanced insights into how Islamic jurisprudence interacts with emerging financial technologies like Bitcoin.

Türkiye's High Board of Religious Affairs

The fatwa dated 04.12.2017 by Türkiye's High Board of Religious Affairs to the question "*What is the religious ruling on the use of cryptocurrencies?*" can be represented as follows (High Board of Religious Affairs, 2017):

> "It is permissible to use any type of currency that is widely accepted as a medium of exchange or measure of value among users, provided that its source inspires trust and reliability.
>
> In this context, what matters is whether the medium of exchange known as currency inherently contains substantial uncertainty (gharar) either in its production, distribution, or nature of interaction; whether it serves as a means of deception; and whether it facilitates unjust and unearned enrichment of certain individuals or groups.
>
> The religious ruling regarding each type of cryptocurrency, which have emerged in recent years and come in various forms, must be assessed individually according to the above general principles.
>
> Consequently, the use of cryptocurrencies that inherently contain significant uncertainty, carry a high risk of deception and fraud, offer no guarantees or security, and lead to unjust enrichment—similar to pyramid-scheme practices commonly known in society—is impermissible."

The Turkish Sharia authorities were previously claimed to have made a blanket prohibition on Bitcoin in an earlier fatwa, but this updated fatwa's reasoning uses careful language, ensuring adherence to classical jurisprudence while remaining open to cryptocurrencies that potentially fulfill Sharia-compliant conditions. The fatwa employs the concept of Maslahah (public welfare) implicitly, by assessing trustworthiness, security, and protection from harm. This reflects careful textual reasoning (dalālah), distinguishing clearly between permissible and impermissible transactions based on clearly stated Sharia principles rather than generalizing indiscriminately.

Palestinian Dar Al Ifta

The Supreme Iftaa Council of the Palestinian Fatwa House (Dar Al Ifta) issued a fatwa in response to a question on the Sharia ruling for Bitcoin trading and mining, raising several key objections (Supreme Iftaa Council, 2017). First, it highlights Bitcoin's anonymity, depicting this feature as enabling illegal activities such as drug trafficking and money laundering. Second, the fatwa points to extreme uncertainty (gharar) and risk (mukhāṭarah), emphasizing dangers like volatility, hacking threats, and the potential for sudden or restrictive government regulations. Third, it cites Bitcoin's limited supply of 21 million coins, judging this aspect harmful. Fourth, the fatwa criticizes the term "mining," arguing that the underlying competition more closely resembles gambling (maysir) and wastes resources. Fifth, it denounces Bitcoin's trustless design, claiming that the lack of a reliable issuing authority undermines the necessity of trust in currency adoption. Sixth, it contends that Bitcoin fails the Sharia conditions for money, insisting that a valid "Sharia-compliant coin" must serve as a unit of account (Thamaniyyah), be issued by a recognized authority, and enjoy general public acceptance—criteria that, the fatwa notes, Bitcoin does not meet, referencing bans in countries like Russia and China. Seventh, the fatwa cites a warning from the Palestinian Monetary Authority indicating that any Palestinian money exchanged for Bitcoin could drop to zero at any time. Finally, the fatwa concludes that Bitcoin lacks Thamaniyyah (monetary value) and thus does not qualify as a valid commodity, effectively classifying it as non-property under Sharia. In light of these objections, it declares Bitcoin trading and mining harām (impermissible) due to uncertainty, lack of guarantees, and inherent risks, invoking prophetic hadiths that forbid transactions involving unknown (majhūl) or uncertain (gharar) objects.

The fatwa's portrayal of Bitcoin mining as gambling is inaccurate when assessed in light of Bitcoin's technological structure and the classical jurisprudential concept of gambling. In Usul al-Fiqh, *maysir* involves wagering wealth in games of pure chance, where participants stake resources on uncertain outcomes, leading directly to unjustified losses or unearned gains. Bitcoin mining differs fundamentally. It is a computational process that validates transactions and secures the blockchain network through cryptographic problem-solving. Although

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miners compete to solve algorithmic challenges, they are not betting against one another in a zero-sum manner. Instead, each miner voluntarily invests computational resources and energy costs; if successful, they receive a predictable, algorithmically determined reward, and even unsuccessful attempts indirectly bolster network security. Thus, mining does not equate to the zero-sum wagering that classical fiqh deems impermissible. Because the fatwa misunderstands mining's function and conflates it with gambling, its analysis is weakened under Usul al-Fiqh standards. A more accurate grasp of mining would classify it as a productive economic activity, distinctly removed from the classical forms of gambling that Sharia explicitly prohibits.

The fatwa contends that Bitcoin fails the Sharia conditions for money. However, from an Usul al-Fiqh perspective, the logic behind these conditions is methodologically questionable. First, the fatwa enumerates three criteria for Sharia-compliant money—being a unit of account (described in the fatwa as *Thamaniyyah*), being issued by a recognized authority, and enjoying widespread acceptance—without referencing any primary Islamic sources (Qur'an or Sunnah).

Second, the fatwa treats *Thamaniyyah* as a decisive factor for recognizing money, ignoring the fact that classical scholars debate whether *Thamaniyyah* is essential or merely functional, and whether it applies exclusively to gold and silver or extends to other mediums of exchange. Typically, *Thamaniyyah* indicates an item's potential for usury (*riba*) regulations, not its fundamental eligibility as money or property. Even if Bitcoin were excluded from *Thamaniyyah*, that alone would not prevent it from being considered legitimate property—or from acting as a valid currency in practical terms.

Finally, the fatwa notes limited acceptance and official bans in countries like Russia and China but neglects the classical stance that currency legitimacy hinges on societal usage and mutual consent, not solely on governmental recognition. Many recognized national currencies also lack universal acceptance, yet remain permissible under Sharia. This selective focus on governmental bans lacks sufficient grounding in primary fiqh sources, further weakening the ruling.

The fatwa employs a nuanced linguistic and juristic approach in its classification, arguing that Bitcoin does not fulfill Sharia-compliant currency standards (due to absent centralized authority or inherent trust) nor qualifies as a valid commodity (due to intangible form and lack of direct human consumption benefits). Yet restricting property solely to tangible items runs counter to significant strands of classical fiqh and modern Sharia scholarship, which accept various intangible assets.

Furthermore, the fatwa implicitly applies *Sadd al-Dharā'i'* (blocking harmful means) by banning Bitcoin trading to avert perceived large-scale damage, whether economic instability or illicit use. References to public welfare (*maslaḥah*)—though not explicitly named—surface in its warnings about national economic harm and substantial financial losses. Still, an overly broad depiction of Bitcoin as inherently speculative or fraudulent reveals a limited conceptual understanding of the network's technological underpinnings and legitimate economic roles. Since valid ijtihād requires a full, accurate picture of the subject, this mischaracterization undermines the fatwa's universal applicability and persuasiveness under Usul al-Fiqh.

Overall, while the Palestinian fatwa identifies legitimate risks and concerns about Bitcoin, its classification of mining as gambling and blanket dismissal of Bitcoin as non-property reflect methodological shortcomings. A more thorough analysis, factoring in intangible property's classical acceptance and Bitcoin's actual technological features, might have led to a more precise and potentially differentiated ruling.

Egypt's Dar Al-Ifta

The fatwa by Egypt's Grand Mufti Dr. Shawki Ibrahim Allam, on behalf of Egypt's Dar Al-Ifta, declares Bitcoin trading impermissible (ḥarām) due to several reasons: Bitcoin lacks the fundamental conditions required by Sharia for a valid currency, including clear measurement standards, identifiable sources, and general acceptability (Allam, 2017). It asserts that Bitcoin involves hidden fraud (ghish), significant uncertainty (gharar), and volatility causing widespread deception among participants, thus likening it to counterfeit currency

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and ambiguous commodities explicitly forbidden by prophetic traditions. Additionally, the fatwa claims that Bitcoin trading causes serious economic harm, invoking the legal maxim "no harm nor reciprocation of harm". The fatwa further argues that currency issuance is exclusively a state prerogative, implying that private issuance constitutes unlawful interference with state authority. Due to these concerns about uncertainty, fraud, harm, and interference with state rights, the fatwa categorically prohibits dealing with Bitcoin.

The fatwa primarily references two Hadiths, one one fraud and deceit, and another on preventing harm. While these hadiths are authentic and authoritative, their application in this context requires proper understanding and accurate conceptualization. The fatwa attempts to apply these texts by categorizing Bitcoin as inherently involving deception, uncertainty (gharar), and harm. However, applying these principles depends significantly on accurate characterization and understanding of Bitcoin, which appears lacking here.

The fatwa applies the Hadith "Whoever cheats us is not from us" analogically to Bitcoin by drawing a parallel with counterfeit money (coins) and fraudulent commodities. However, this analogy is flawed from an Usul al-Fiqh standpoint for the following. First, analogical reasoning (Qiyas) in Usul al-Fiqh must be explicitly based on shared operative causes (Illah) derived from primary texts. The Mufti's fatwa does not clearly demonstrate the 'illah from textual evidence that accurately corresponds to Bitcoin's nature. Instead, it analogizes Bitcoin to other previously prohibited items (counterfeit money, dust of goldsmiths, etc.), which are secondary precedents, not primary textual sources. Second, the hadith about deception primarily forbids transactions involving intentional fraud or misrepresentation. Bitcoin's decentralized and transparent ledger (blockchain) provides greater transparency rather than hidden deception. Misrepresenting Bitcoin as inherently deceptive reflects conceptual misunderstanding, weakening the analogical reasoning.

Another matter relates to the principle in the hadith "There should be neither harm nor reciprocation of harm". The fatwa employs this hadith inaccurately by associating Bitcoin transactions with generalized economic harms or financial instability. The principle referenced is primarily applied to prevent

individuals from intentionally harming one another or to assign liability for inflicted damage (as in tort law). In Bitcoin transactions, there is no intrinsic harm inflicted by one party upon another inherently. Bitcoin users voluntarily assume the known risks. Further, generalized economic instability or volatility does not equate to intentional or direct harm by one party upon another, thus misapplying the hadith and rendering the reasoning weak from a jurisprudential perspective.

The fatwa places significant emphasis on the exclusive right of the state to issue currency (Ḍarb al-Sikkah), implying that dealing with Bitcoin amounts to defyance to the dominion of the ruler. This claim presents two methodological flaws. First, the Mufti implies the existence of consensus regarding state monopoly on money issuance without explicit evidence from classical sources or proof of unanimous scholarly agreement. Second, the fatwa is misinterpretation "minting" in classical texts. Classical jurists referred specifically to physically minted coins (gold, silver, metal) when discussing "ḍarb al-sikkah" (minting coins). Contemporary monetary policy (printing fiat currencies, digital currencies) differs fundamentally from classical minting practices. Thus, applying classical jurisprudence on coin minting directly to digital currency issuance represents a methodological error based on inaccurate analogy.

The fatwa strongly emphasizes Gharar and Jahalah, associating these terms with Bitcoin's volatility, anonymity, and lack of physical backing. However, classical jurisprudence defines gharar as significant ambiguity or uncertainty concerning the fundamental attributes of the traded item. Bitcoin, despite volatility, possesses clear attributes: its quantity, transaction record (blockchain), and availability are known and transparently accessible. Volatility alone does not constitute classical gharar, which focuses on ambiguity or ignorance of fundamental attributes. Jahalah (ignorance) refers specifically to uncertainty regarding the traded commodity itself. Bitcoin transactions clearly define traded units, their ownership, and their history. Hence, describing Bitcoin as fundamentally "unknown" or "non-visible" misunderstands digital property and overlooks classical jurisprudential flexibility toward intangible property.

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The fatwa frequently exhibits deep conceptual misunderstanding (Tasawwur Ghayr Sahih) of Bitcoin's technology, use-cases, and economic functionality. For instance, Bitcoin's decentralized structure is described negatively (absence of authority, lack of state backing), ignoring positive aspects such as transparency, incorruptibility, and resistance to fraud. Further, Bitcoin's association with illicit activities is generalized and ignores legitimate uses by millions globally. This inaccurate conceptualization significantly weakens the validity and applicability of the fatwa according to Usul al-Fiqh principles, which mandate precise understanding of subject matter.

From an Usul al-Fiqh perspective, Mufti Shawki Allam's fatwa presents one of the early attempts at rationalizing Bitcoin in a rigorous methodological grounding, raising valid policy concerns (deception, state control over currency, economic stability). However, the fatwa demonstrates critical methodological shortcomings due to inaccurate conceptualization, flawed analogical reasoning (Qiyas), inappropriate use of secondary sources as if primary, and incorrect application of key jurisprudential concepts, rendering it jurisprudentially deficient and in need of substantial correction or reassessment.

Prof Dr Ali Al-Quradaghi

Prof. Dr. Ali Al-Quradaghi is a prominent contemporary Sharia scholar widely recognized for his influential contributions to Islamic jurisprudence, particularly in Islamic finance and economics. Serving as the President of the International Union of Muslim Scholars (IUMS) and a senior advisor to several Islamic financial institutions globally, Al-Quradaghi's scholarship is characterized by rigorous adherence to classical jurisprudential methodologies coupled with engagement in contemporary economic and financial challenges. His opinions, fatwas, and scholarly writings significantly impact Muslim communities and institutions worldwide, making him a critical voice in debates surrounding emerging technologies and financial instruments, including cryptocurrencies.

Prof. Dr. Ali Al-Quradaghi's fatwa on Bitcoin presents a detailed prohibition based on multiple legal, economic, and Sharia-based arguments (Al-Quradaghi, 2018). At its core, his position is that Bitcoin does not fulfill the essential requirements

of money in Sharia and poses substantial harms to individuals and society, warranting its prohibition. His reasoning begins by affirming that the issuance of currency is the exclusive right of the state. He draws on historical Islamic jurisprudence to argue that minting coins was traditionally a responsibility of the ruler, and that counterfeiting or corruption in currency indicated broader governmental failure. He uses this as a foundation to argue that Bitcoin's decentralized issuance violates established Sharia practices.

Al-Quradaghi further argues that protection of wealth (ḥifẓ al-māl) is a key objective of Islamic law (maqāṣid al-sharīʿah), and that Bitcoin jeopardizes this objective due to its volatility and speculative nature. He asserts that money must serve as a unit of account, store of value, medium of exchange, and standard of deferred payment, and that Bitcoin fails in these respects. He also references the jurisprudential position of some classical scholars who limited the ʿillah (effective cause) of Qiyās (analogical reasoning) regarding money to gold and silver (dīnār and dirham), implying that Bitcoin, lacking physicality and intrinsic value, cannot be considered legitimate money.

A key contention in the fatwa is the claim that Bitcoin is neither money nor property. Al-Quradaghi argues that because Bitcoin is a digital record without physical substance, it fails to qualify even as māl (property), and is thus unsuitable for trade. He contends that Islamic economics is rooted in real assets and utility, while Bitcoin is more aligned with speculative, credit-based, capitalist markets. As such, he views Bitcoin as a tool for unjust enrichment, vulnerable to manipulation, and lacking any real economic or technological benefit. He also asserts that Bitcoin fails to meet the Sharia rules of currency exchange (ṣarf), including the requirement for immediate hand-to-hand transfer.

The fatwa claims that Bitcoin is widely used in illegal activities, lacks a responsible issuing party or guarantee, and is subject to extreme risk, including regulatory bans and potential technical failures. Al-Quradaghi equates Bitcoin trading to gambling (qimār) due to its speculative nature and likens it to transactions filled with gharar (excessive uncertainty), both of which are prohibited in Sharia. He concludes that Bitcoin is haram (prohibited), but as a prohibition of means rather than essence (ḥarām li-ghayrihi), meaning its prohibition arises

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from the harms and risks it entails, not from its inherent nature. He further states that Muslims who own Bitcoin must dispose of it and give excess profits to charity, and calls on Muslim governments to outlaw its use until its status is rectified.

Al-Quradaghi's fatwa suggests gaps in his understanding of Bitcoin's technical and economic fundamentals. Specifically, his claims that Bitcoin is "merely an electronic copy in computers with no physical presence," "has no benefit on industry, technology, or real trade," and conflating Bitcoin universally with speculative instruments (such as derivatives or futures) indicate limited familiarity with Bitcoin's underlying technology, utility, and practical applications. In Islamic jurisprudence (Usul al-Fiqh), particularly in the principles governing Ijtihad (juristic reasoning), a crucial condition for issuing a valid verdict (fatwa) is possessing deep and accurate understanding of the subject matter. If this precise conceptualization or thorough understanding of the subject is flawed or incomplete, it directly impacts the legitimacy of the juristic ruling derived from such incomplete premises. Since Al-Quradaghi's verdict hinges significantly upon incorrect or incomplete assumptions regarding Bitcoin's nature, technology, utility, and role within economic transactions, it weakens his fatwa's authority according to Usul al-Fiqh. Consequently, this diminished accuracy affects the reliability and binding nature of the fatwa. The fatwa may be considered deficient (Naqis) in Usul al-Fiqh terms because it does not fulfill the precondition of comprehensive subject matter understanding. Such deficiency justifies re-examination or reconsideration (Muraja'ah) of his fatwa, especially when accurate technical and economic knowledge becomes available or is clarified. Other qualified scholars who demonstrate a deeper, more accurate understanding of Bitcoin could potentially issue different conclusions, challenging or overriding his verdict.

Al-Quradaghi emphasizes traditional jurisprudential stances regarding the authority of the ruler (state) over monetary issuance, referencing classical texts affirming minting as a sovereign duty. Within Usul al-Fiqh, such historical precedents reflect reliance on state authority (Wilayat al-Amr) to protect public welfare, an extention of the Unrestricted Maslahah source of Sharia jurisprudence

in Usul al-Fiqh. However, limiting money exclusively to state-sanctioned issuance is not explicitly derived from primary texts (Qur'an and Sunnah). Instead, this restriction relies on historical scholarly interpretations and administrative considerations, which are subject to change according to best practices. However, he emphasized his relyance on such secondary authorities as conclusive and evident of a widely understood verdict of divine prohibition. Scholarly diligence would have required a disclaimer on the distinction between primary sources and Unrestricted Maslahah.

Al-Quradaghi's emphasis on wealth protection aligns explicitly with Sharia Objectives. Al-Quradaghi correctly highlights wealth preservation as a fundamental objective. However, he uses this objective to justify a restrictive stance toward Bitcoin, asserting a high risk and potential societal harm without explicitly analyzing Bitcoin's inherent nature based on the primary textual sources.

His conclusion that Bitcoin is neither money nor property due to lack of physicality introduces a novel criterion not explicitly derived from primary sources. Traditional Sharia jurists broadly define Māl (property) as anything beneficially possessed and traded. Digital assets possess economic utility and transactional value despite lacking physicality. Here, Al-Quradaghi applies a restrictive interpretation of property inconsistent with the broader Fiqh tradition, which historically recognizes non-tangible rights (usufruct, intellectual property, debts, etc.) as forms of property.

Al-Quradaghi criticizes speculative financial instruments (derivatives, futures, margins) typical in capitalist economies, suggesting their reliance on "credit" rather than tangible assets violates Islamic principles. This assertion aligns with traditional Islamic critiques of pure speculation (Mayser) and usury. However, applying this critique to Bitcoin broadly equates all cryptocurrency transactions with speculative derivatives, neglecting legitimate transactional or investment uses.

The reference to the "Riba of Hadith" requiring immediate spot transactions (Sarf) in currency exchange correctly identifies traditional Islamic financial conditions. However, applying Sarf requirements universally to Bitcoin transactions assumes Bitcoin is definitively money, a categorization he earlier rejected.

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Hence, there's methodological inconsistency here—he invokes currency-specific conditions while denying Bitcoin monetary status.

He asserts that Bitcoin violates unanimously agreed-upon (Ijma') currency transaction standards. However, he cites no such Ijmaa, and and it is his responsibility to cite one of the scholars who collected such Ijmaa. To the contrary, many of the the issues relating to money are credibly disputed by the highest of sharia scholars, including the primary Imams establishing the schools of Fiqh. The primary issue disputed is one that he himself referenced in his Ijtihad: the dispute over the operative cause (Ilah) of gold and silver and whether or not an anology can be made to other currencies such as fiat currencies. Invoking Ijma' prematurely undermines methodological rigor.

Identifying the sale of excessive speculation (gharar) as prohibited aligns with clear primary texts. However, Al-Quradaghi treats all Bitcoin transactions uniformly speculative, thus overly generalizing. The mere existence of volatility or speculative use doesn't categorically render the asset itself prohibited under Fiqh. Classical jurists distinguished between intrinsic characteristics and market misuse, and the sale of gharar is an example of the latter. Further, he seems to be mixing Gharar with Sale of Gharar: the primary Sharia sources prohibit the latter and not the former.

The categorization of Bitcoin's prohibition as Sadd al-Dhara'i (preventing harm) can be methodologically coherent in Usul al-Fiqh. However, earlier he categorically rejected any indication that Bitcoin is money or even property, implying a serious contradiction in his verdict. He either needs to stick to a verdict of non-property, or describe Bitcoin as property and then impliment the Sadd al-Dhara'I criteria. Further, he assumes for Sadd al-Dhara'I that Bitcoin inherently leads to prohibitions (harm, speculation) without explicit proof from primary sources or clear Qiyas (analogical reasoning) or indeed from an accurate understanding of Bitcoin's technology. Sadd al-Dhara'i traditionally requires clear probability causative connections, not generalized assumptions of potential harm.

Interestingly, Al-Quradaghi concedes the theoretical permissibility of cryptocurrency if it fulfills Shariah conditions (real underlying assets, clarity, no excessive

speculation). This acknowledgment indirectly indicates Bitcoin's prohibition is contingent and context-dependent, opening doors for reconsideration. Further, such assumption necessarily implies that Bitcoin can be money or property, another contradiction of his lack of value proposition.

The International Union of Muslim Scholars

The International Union of Muslim Scholars (IUMS), led by Prof. Dr. Ali Muhyiddin al-Quradaghi, issued a resolution prohibiting transactions involving Bitcoin and similar unofficial digital currencies under their current circumstances (IUMS Fatwa & Ijtihad Committee, 2022). The fatwa argues that Bitcoin fails to satisfy essential Islamic jurisprudential and economic criteria for valid currencies, such as acting as a standard measure of value, medium of exchange, and reliable store of value. Additionally, it highlights concerns over Bitcoin's anonymity, its use in criminal activities (e.g., money laundering and illicit trade), and its speculative nature. The fatwa specifically references the primary textual principle ("No harm nor reciprocation of harm") as justification, categorizing the prohibition as a means-based prohibition (taḥrīm al-wasā'il) rather than an intrinsic one. Consequently, the fatwa permits exceptions under cases of genuine necessity or significant communal benefit and allows future reconsideration if Bitcoin evolves to fulfill legitimate monetary functions.

The IUMS fatwa heavily reflects al-Quradaghi's earlier stance against Bitcoin, while notably avoiding the inadequacy as property (māl) characterization. The IUMS reiterates his primary arguments regarding Bitcoin's failure to meet classical and neoclassical economic criteria (medium of exchange, measure of value, store of value). However, this threefold criterion originates from neoclassical economics rather than primary Sharia texts, and is itself contested among contemporary economists. Classical Islamic jurisprudence does not explicitly or exclusively endorse this particular economic definition of money, suggesting that its adoption here represents a methodological weakness in relying on secondary, non-jurisprudential sources rather than primary textual evidence.

The fatwa emphasizes the textual principle of "no harm", attempting to use this general Sharia principle to justify prohibition. However, the principle

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traditionally addresses direct interpersonal harm or clearly defined public harm. Its application here is overly broad, as commercial activities inherently involve acceptable risks and speculative elements permitted by classical jurisprudence. Consequently, the fatwa's reliance on this principle, without a nuanced explanation grounded in explicit primary texts or specific harms, weakens its methodological rigor.

Further methodological inconsistency emerges in classifying the prohibition as conditional (tahrīm al-wasā'il). Initially, the fatwa argues categorically against Bitcoin's validity as either money or property (māl), citing excessive uncertainty (gharar) and ambiguity (jahālah). Such reasoning implies Bitcoin is inherently invalid for transactions. However, by later adopting a conditional prohibition framework (tahrīm al-wasā'il), it implicitly acknowledges Bitcoin's essential existence as property or money that could, under different conditions, be permissible. This represents a stark contradiction, undermining the internal coherence of its jurisprudential reasoning.

Additionally, the fatwa's claim about the exclusive right of states to issue currency references classical scholars like Imam Ahmad and al-Rāfi'ī. However, these references do not establish a unanimous consensus (ijmā'), nor do they accurately reflect modern monetary policy concepts, thus limiting their relevance to the contemporary context of decentralized digital currencies.

In conclusion, from an Usul al-Fiqh perspective, the IUMS fatwa is methodologically compromised due to reliance on non-primary economic criteria, overly generalized interpretations of the principle of harm, internal contradictions regarding Bitcoin's status as money or property, and an incomplete understanding of classical jurisprudential precedents on currency issuance. While the fatwa's cautious stance toward Bitcoin is understandable, its jurisprudential justification requires more rigorous methodological consistency and clarity.

Majelis Ulama Indonesia

The Indonesian Ulema Council (Majelis Ulama Indonesia - MUI), in its fatwa issued at the VII Fatwa Commission Scholars' Congress (Ijtima' Ulama Komisi Fatwa) held in Jakarta on November 9-11, 2021, declared cryptocurrency,

specifically Bitcoin, as impermissible (haram) when used as currency (MUI, 2021). They stated that cryptocurrencies contain gharar (excessive uncertainty), dharrar (harm), and qimar (gambling). According to the fatwa, cryptocurrency also violates Indonesian law concerning currency, specifically Law No. 7 of 2011 and Bank Indonesia regulations mandating Rupiah as the exclusive currency within the country.

The fatwa further states that cryptocurrency is not permissible as a commodity or digital asset for trading because it does not fulfill Sharia requirements for a valid commodity (sil'ah), namely having physical existence, intrinsic value, clearly defined quantity, proper ownership rights, and deliverability to the buyer.

However, the fatwa leaves room for permissibility in a hypothetical scenario: if cryptocurrency meets the Sharia requirements for commodities, has a clear underlying asset, and is free from gharar, dharrar, and qimar, then it becomes permissible for trading.

The fatwa by MUI adopts a cautious but methodologically challenging approach according to classical principles of Usul al-Fiqh. Below is a detailed evaluation:

The fatwa explicitly cites relevant Qur'anic verses (Al-Baqarah: 188, 278-280; Al-Nisa: 29; Al-Maidah: 90) and Hadith that prohibit transactions involving excessive uncertainty (gharar), gambling (qimar), and unlawful acquisition of wealth. This reliance on clear textual injunctions aligns methodologically well with Usul al-Fiqh standards.

The fatwa uses classical conditions for a valid commodity (sil'ah)—physical existence, known quantity, intrinsic value, clear ownership, and deliverability. It is noted that classical Arabic fiqh literature commonly uses terms like ʿayn (عين) (plural: aʿyān أعيان) when referring explicitly to tangible, physical goods. The term silʿah (سلعة), though Arabic in origin, traditionally refers broadly to commodities, merchandise, or goods specifically intended for trade—having less of a strict implication regarding physicality, compared to ʿayn/aʿyān. In contemporary Indonesian Islamic jurisprudence, especially among jurists affiliated with the Indonesian Ulema Council (Majelis Ulama Indonesia, MUI), the term silʿah

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has become more prevalent. This increased use likely reflects the modern economic context—particularly the expansion of commodity markets, trade, Islamic finance, and the nuanced classification of contemporary financial and digital assets. Indonesian jurists often integrate classical Arabic terminology into their Indonesian-language fatwas but sometimes use or reinterpret these classical terms differently, influenced by local economic discussions, regulatory considerations, and modern scholarly debates.

Such strict physicality condition as embodied in either silʿah or ʿayn reflects traditional juristic positions originally pursued by some fo the the Hanafi and the Shafii schools of fiqh, but being overwelmed by the opinions of other classic and contemporary jurists, sticking to it might be overly restrictive when applied to modern digital assets. Classical jurisprudence acknowledges forms of intangible assets (rights, debts, intellectual properties) as legitimate properties (māl). Thus, the fatwa's insistence on physical presence and inherent physical value may represent an unnecessarily restrictive understanding, methodologically limiting its applicability.

The fatwa correctly identifies gharar, dharrar, and qimar as operative causes derived from explicit textual prohibitions (hadiths forbidding gharar and qimar). However, classifying cryptocurrency trading inherently as gambling (qimar) represents a methodological overreach. Classical jurisprudence characterizes gambling as purely chance-based, zero-sum, and lacking productive economic value, conditions that do not neatly apply to cryptocurrency trading or mining. Thus, the fatwa's analogy here is methodologically weak.

Although the fatwa emphasizes harm (dharrar) as a basis of prohibition, it broadly applies the principle of "no harm nor reciprocation of harm," a general maxim requiring nuanced interpretation. Trading and investment activities inherently involve risk, which classical jurisprudence permits when risks are reasonable and justifiable. The fatwa's categorical characterization of cryptocurrency as causing unacceptable harm needs more explicit and context-specific justification to meet classical jurisprudential standards. Such undue diligence to trace sources of harm in cryptocurrencies was compoudned by a significant oversight by MUI regarding the potential benefits cryptocurrencies could offer,

such as enhancing transactional security, investment opportunities, market efficiency, and facilitating new economic activities. Thus, MUI's fatwa overlooks essential considerations of public welfare (**Maslahah**).

Interestingly, the fatwa provides a conditional permissibility clause, suggesting cryptocurrency may become permissible if certain conditions (clear underlying asset, absence of gharar/qimar/dharrar) are met. This conditional approach demonstrates an implicit acknowledgment of cryptocurrency's potential legitimacy, despite earlier dismissing it categorically as neither money nor a legitimate commodity. While this conditional approach is methodologically sound, it somewhat contradicts the fatwa's initial absolute stance against cryptocurrency, reflecting internal tension and lack of conceptual consistency.

The fatwa explicitly references Indonesian state regulations mandating Rupiah as the exclusive national currency, which aligns with the classical jurisprudential principle of adherence to legitimate state authority (Ulil Amr). However, classical Islamic jurisprudence does not categorically forbid privately issued forms of currency; historically, various forms of exchange mediums were permissible provided they fulfilled basic transactional fairness and mutual consent.

The MUI fatwa methodologically aligns strongly with primary Islamic sources and Maqasid al-Sharia concerning harm prevention and financial justice. However, its application of classical jurisprudential conditions for commodities and money appears overly restrictive, methodologically weak in analogical reasoning, and inconsistent in conceptualizing cryptocurrency's legal status. Thus, while cautious, the fatwa requires further refinement, incorporating nuanced analysis of cryptocurrency technology, clearer juristic reasoning, and greater conceptual consistency according to Usul al-Fiqh standards.

Summary of Prohibition Fatwas

According to the prohibition fatwas under discussion, the main challenges to Bitcoin's permissibility revolve around key points. First, numerous fatwas emphasize that the right to mint or issue currency (*ḍarb al-sikkah*) belongs exclusively to state authorities, citing classical jurisprudential views that legitimizing currency requires a recognized sovereign guarantor. Second, they argue that

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Bitcoin, lacking physical or tangible existence, cannot qualify as a real asset, commodity, or valid property under the traditional conditions for Sharia-compliant financial transactions. Third, some fatwas contend that Bitcoin lacks some conditions typically demanded by classical Islamic jurisprudence for a legitimate currency, contending that it is neither backed by a credible financial institution nor universally recognized by society.

Critics also allege that Bitcoin transactions undermine key Maqasid al-Shari'ah objectives—especially the preservation of wealth and socio-economic stability—by exposing users to excessive volatility and uncertainty. Fifty, they critique excessive uncertainty (*gharar*), wherein rapid price fluctuations and opaque valuation mechanisms are seen as contravening the Sharia prohibition on ambiguous or risky transactions. Sixth, the anonymity and technical complexity of Bitcoin are said to open the door to fraud and deception (*ghish* and *taghrīr*), contradicting prophetic warnings against manipulative financial dealings. Furthermore, some fatwas draw parallels between Bitcoin trading and gambling (*maysir*), claiming that speculative trading wastes resources and yield unfair profits or losses. Finally, the decentralized and pseudonymous design of Bitcoin is seen as facilitating illicit activities such as money laundering, drug trafficking, and illegal arms trade, leading to significant moral and legal concerns.

Taken together, these factors form the basis for prohibiting Bitcoin transactions in the analyzed fatwas—even as questions remain regarding the methodological and conceptual soundness of some arguments under Usul al-Fiqh. The discussion sections offer a more expansive critique of the most contentious issues cited by these fatwas.

Discussion

A Critique of the Prohibition Fatwas

In Islamic jurisprudence (Usul al-Fiqh), ijtihad is defined as exerting utmost effort to arrive at accurate legal rulings. A jurist (mujtahid) is thus not considered to have genuinely "spared no effort" until he has fully understood the factual circumstances (taṣawwur) of the issue at hand (Kamali, 2003). This thorough

understanding becomes especially critical when issuing a fatwa of prohibition, as prohibitions carry significant implications for the community.

Classical scholars emphasize that when jurists face uncertainty or doubt regarding either the factual or the Sharia aspects of an issue, it is their duty to refrain from issuing a fatwa. This principle is known as tawaqquf, or abstention from judgment, and can manifest in various forms, such as explicitly declining to answer, stating clearly "I do not know," or referring the questioner to another more knowledgeable mufti out of precaution (Ibn Al-Qayyim, 2019).

This cautious approach is grounded in authentic prophetic traditions, including the hadith stating: "If a judge (qadi) makes a correct decision through ijtihad, he receives two rewards, and if he errs, he receives one reward" (Sahih Muslim 1716a). However, this hadith specifies that such rewards are only given to a mujtahid who genuinely meets the rigorous criteria of ijtihad. The seriousness of this requirement is further highlighted by another hadith, which categorizes judges into three groups: "One judge will be in Paradise, and two judges will be in Hellfire. The judge who goes to Paradise is the one who recognizes the truth and judges by it. The one who recognizes the truth but deliberately judges unjustly is in Hellfire, and the one who judges people out of ignorance is also in Hellfire" (Sunan Ibn Majah 2315).

Additionally, the Qur'an explicitly warns against speaking about Allah or the Sharia without knowledge, categorizing it among the gravest sins: "Say, 'My Lord has only forbidden immoralities—what is apparent of them and what is concealed—and sin, and unjust aggression, and that you associate with Allah that for which He has not sent down authority, and that you say about Allah that which you do not know.'" (Qur'an 7:33). Ibn al-Qayyim further emphasizes this gravity, stating that speaking about Allah without knowledge constitutes the root of disbelief and polytheism, as it entails inventing ungrounded beliefs or rulings that can misguide entire communities.

Therefore, from the perspective of Usul al-Fiqh, issuing fatwas based on incomplete conceptualization or insufficient understanding is methodologically flawed and ethically irresponsible. Jurists bear the significant duty of ensuring full comprehension of both the factual realities and Sharia evidence before

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issuing legal verdicts, particularly prohibitions. Failure to uphold this standard undermines the integrity and legitimacy of the fatwa and risks severe spiritual and societal consequences.

Ancient Sharia jurists exercised considerable caution before declaring matters as definitively Haram (prohibited). Guided by the foundational Qur'anic principle stated in Surah al-An'ām (6:119): "And He has explained to you in detail what is forbidden to you, except that to which you are compelled," classical jurists refrained from hastily labeling actions as categorically Haram without explicit and definitive textual evidence from primary sources (the Qur'an and authentic Sunnah). Instead, jurists often chose to express prohibitions cautiously using terms like Makruh (disliked) or "I hate", even when they intended an implicit prohibition (Al-Shehabi, 2023). This approach reflected their deep sense of accountability and humility before God, acknowledging the gravity of attributing prohibitions directly to divine authority.

Imam Ibn al-Qayyim al-Jawziyyah notably emphasized this cautious, stressing that scholars who issue fatwas or engage in ijtihad act as signatories on behalf of Almighty Allah (Ibn Al-Qayyim, 2019). He issued explicit guidelines and warnings to jurists, urging utmost caution to avoid exceeding their sanctioned authority and inadvertently imposing unjustified restrictions upon believers. Ibn al-Qayyim's warnings underscore the necessity for scholarly humility, rigorous methodological adherence, and profound recognition of the responsibility inherent in declaring something Haram.

Contrastingly, many contemporary jurists display relative haste in issuing Haram judgments, frequently overlooking the nuanced caution practiced by classical scholars. This trend not only risks overstepping the boundaries of juristic authority but also leads to unnecessary hardship, restricting permissible opportunities and advancements for the Muslim community. Revisiting classical jurisprudential wisdom serves as a crucial corrective, reminding contemporary scholars of the profound responsibility inherent in their role and the necessity of rigorous methodological discipline grounded firmly in explicit textual evidence from primary Sharia sources.

Moneyness vs Thamaniyyah

As referenced above, one of the greatest preculiarities of the esteemed fatwas above is their relyance not on Sharia or hard science, but on the orthodoxy of mainstream neoclassical categorization of money: being a medium of exchange, a unit of account, and a store of value. The fatwa from the Palestinian High Fatwa Board argued that Bitcoin does not serve as a valid unit of account because it does not consistently measure the value of goods and services, leaning (intentionally or unintentionally) towards the concept of money adopted by Post-Keynesians and Mondern Monetary Theory. They emphasized Bitcoin's extreme price volatility, stating it undermines its role in facilitating stable valuations and predictable deferred payments. Similarly, the fatwa issued by Dar al-Ifta al-Misriyya (Grand Mufti of Egypt Dr. Shawki Ibrahim Allam) asserted Bitcoin's failure in fulfilling the economic orthodoxy of monetary functions. The Mufti argued Bitcoin neither acts reliably as a measure of value nor offers stability required to preserve wealth, unintentionally contradicting the consumerist nature of mainstream economic thought. The fatwa claimed Bitcoin lacks clear valuation standards, widespread acceptance, and trust backed by legitimate authorities, explicitly referencing Bitcoin's speculative nature, price instability, and absence of state guarantees. The International Union of Muslim Scholars (IUMS), led by Prof. Dr. Ali Muhyiddin al-Quradaghi, reiterated similar points, arguing that Bitcoin and other unofficial digital currencies do not satisfy essential conditions recognized by both jurists and economists: general acceptance, stable value measurement, and functionality as a reliable medium for deferred payments, the last condition implicitly highlighting and relying on the debt-inflated, monetary policy driven, and interest-based (Riba) aspects of the orthodox definition of money.

Thamaniyyah vs Neoclassical Orthodoxy

Are Sharia jurists fully aware of the implications of the political-economic assumptions they adopt? Many prohibition fatwas against Bitcoin rely heavily on a neoclassical test for money, typically defining it through three core functions—medium of exchange, store of value, and unit of account. Although historically prominent, this functional approach can overlook deeper social, legal, and

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political forces that shape monetary acceptance (Koddenbrock, 2019). Standard textbook roles of money may be familiar, but heterodox scholars argue that a purely functional definition obscures the ways in which money emerges from legal frameworks, power relations, or credit-debt obligations, rather than from mere market convenience. As Geoffrey Ingham and other sociologically oriented economists note, we cannot fully understand money by listing its functions alone; we must also place it in its institutional and historical context (Ingham, 2013).

Money stands at the heart of modern economies, yet economic theories diverge sharply on what money is and how it operates (Koddenbrock, 2019). Dominant in academia and policymaking, neoclassical economics—with its microfoundations, equilibrium orientation, and rational-agent assumptions—emphasizes the long-run neutrality of money. Critics suggest this oversimplifies monetary phenomena and neglects historical, institutional, and social aspects (Ingham, 2013; Koddenbrock, 2019). During the late nineteenth century, marginalists such as Jevons, Menger, and Walras recast money as a tool for transactions, a departure from earlier institutional studies by Adam Smith or the mercantilists. Neoclassical economists further advanced the quantity theory, portraying money mainly as nominal. Critics point to private banks' role in endogenizing money supply, an aspect unrecognized by purely exogenous money models (Wray, 2015).

Geoffrey Ingham's sociological analysis challenges neoclassical assumptions, arguing that money is neither neutral nor solely transactional, but intertwined with power and state authority (Ingham, 2013). Austrian economists likewise critique monetary neutrality and highlight how artificial interest rates can distort price signals (Von Mises, 2013). Post-Keynesian and Modern Monetary Theory perspectives add that money is endogenously created via bank lending, requiring active public policy intervention (Wray, 2015). A shared concern across these heterodox views is how neoclassical models often rely on abstract mathematical frameworks detached from complex socio-economic realities (Ingham, 2013).

Thus, Sharia jurists who invoke a simplified neoclassical test for money risk overlooking broader dimensions that shape monetary systems—social, institutional, and historical. If they accord near-canonical status to the orthodox

"threefold test," or treat secular economic theories as unassailable scientific facts, they may obscure the deeper, contested nature of money and entrench paradoxes in their prohibition fatwas.

The Confusion Caused by Rejecting Monetary Status for Bitcoin

Many of the discussed fatwas concluded that Bitcoin does not qualify as money, nor could it be categorized definitively as property (*māl*). Classical Islamic jurisprudence (Fiqh) provides extensive criteria and flexibility for identifying valid property, including intangible assets. The inability of jurists to situate Bitcoin within an existing category reveals gaps in their conceptual understanding and highlights methodological inadequacies.

The disagreements around Bitcoin's monetary status could have been entirely avoided by adopting a more straightforward Fiqh approach centered on the concept of property (*māl*). Several fatwas permitting Bitcoin have correctly highlighted that Islamic jurisprudence does not mandate the price or consideration (*thaman*) in contracts to strictly meet the criteria of money—much less a definition of money aligned with neoclassical economic standards. Analyzing Bitcoin's permissibility could have been more effectively approached by assessing whether it serves as valid property capable of being legitimately exchanged in contracts. This property-rights perspective would have provided a more solid and less contentious foundation for legal reasoning.

Additionally, while Islamic jurisprudence indeed recognizes the concept of *Thamaniyyah* (moneyness), its practical applications are significantly narrower than implied by the fatwas above. *Thamaniyyah* primarily pertains to rules concerning *Ribawi* commodities, not broadly to the validity of transactions or permissibility of assets (Al-Zuhaili, 2017). Unfortunately, the jurists' misplaced emphasis on Bitcoin's status as money created substantial confusion among the general Muslim populace, many of whom interpreted these verdicts simplistically: "since Bitcoin is not money (thaman), it must therefore be prohibited (haram)." Such oversimplifications obscure nuanced Fiqh distinctions, particularly regarding the limited and specific contexts in which an asset must qualify as money (*thaman*).

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Ultimately, by insisting upon categorizing Bitcoin strictly as money and failing to properly utilize established jurisprudential concepts of property, the discussed fatwas have generated significant confusion and misguidance. Worse yet, intentionally or unintentionally, these fatwas may have obscured the true and nuanced Islamic verdict on Bitcoin, contributing to misconceptions rather than informed clarity among Muslims seeking accurate Sharia guidance.

Materiality as Intrinsic Value

Several of the prohibition fatwas above cited Bitcoin's lack of physical or tangible existence as grounds for rejecting its recognition as valid property (*māl*). The Palestinian High Fatwa Board emphasized Bitcoin's intangible existence, arguing it neither meets human consumption needs nor qualifies as a commodity. They highlighted that Bitcoin is purely digital, without underlying physical assets or tangible reference points, thereby classifying it as merely a speculative financial instrument without legitimate property status.

Dar al-Ifta al-Misriyya (Egyptian Grand Mufti Dr. Shawki Ibrahim Allam) also declared Bitcoin invalid as property by underscoring its non-physical, intangible nature. The fatwa likened Bitcoin to ambiguous commodities like counterfeit coins or goldsmith's dust, lacking stable physical criteria for valuation, measurement, or secure storage. Consequently, they argued, such intangible digital assets cannot be recognized within classical Islamic jurisprudential definitions of valid property.

Prof. Dr. Ali Al-Quradaghi explicitly argued that Bitcoin is neither money nor property because it lacks any physical form, categorizing it merely as electronic data stored on computers, with no tangible presence or intrinsic value. He strongly emphasized that Islamic economies are fundamentally based on tangible assets, rights, and usufructs, thus excluding Bitcoin from valid property categories due to its intangible nature.

In contrast, the International Union of Muslim Scholars (IUMS), chaired by Prof. Dr. Al-Quradaghi himself, took a more cautious stance. Although they questioned Bitcoin's legitimacy as money or financial asset due to its intangible nature, their rejection primarily hinged upon Bitcoin's broader speculative

and harmful implications rather than exclusively on its lack of tangibility. The IUMS fatwa carefully left room for reconsideration, implicitly acknowledging that intangible digital assets might eventually qualify as legitimate property if underlying conditions change, reflecting greater jurisprudential caution and flexibility compared to the more absolute rejection by individual scholars like Al-Quradaghi.

Similarly, the Indonesian Majelis Ulama Indonesia (MUI) fatwa emphasized the requirement that a legitimate commodity (*sil'ah*) must possess tangible existence, intrinsic value, precise quantity, established ownership rights, and the ability to be physically delivered. Since Bitcoin lacked these tangible characteristics—specifically physical existence and intrinsic value—the MUI ruled it invalid as a tradable commodity (*sil'ah*), thereby denying its property status under Islamic law.

Collectively, these fatwas reflect varying degrees of insistence on physical tangibility as a criterion for valid property status under Islamic jurisprudence, with the IUMS adopting the most moderate position, implicitly acknowledging that property status might not strictly hinge upon physical existence alone.

The Intrinsic Fallacy

The Sharia jurists, in the prohibition fatwas discussed earlier, appear strongly attached to a realist concept that locates intrinsic value within material objects. Their insistence on materiality possibly aims to provide an objective basis for value assessment, assuming that objectivity inherently yields the most accurate or reliable valuation theory. This attachment to physicality may resonate deeply with common human intuitions, behavioral inclinations, and practical experiences. However, this reliance is often grounded less in robust theoretical or explicit Sharia justifications and more in implicit assumptions or unexamined beliefs about the fundamental nature of value itself. Consequently, these jurists may unintentionally uphold a perspective on value that lacks sufficient philosophical or jurisprudential scrutiny.

Perhaps the Sharia jurists are driven to materiality by an unidentified sense of moral philosophy. Philosophically, the concept of intrinsic value is highly

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contentious and ambiguous, even within moral and economic frameworks. Zimmerman and Bradley (2019) highlight intrinsic value's significant role in moral philosophy, noting that intrinsic value judgments underpin various moral evaluations—including the rightness or wrongness of actions, moral responsibility, justice, and virtue. However, translating these nuanced moral-philosophical discussions to practical economic assessments is complex and remains problematic. Economically, "intrinsic value" typically refers either to an asset's inherent capacity to generate cash flows, which is viewed objectively, or to market-driven subjective expectations of future value. Yet, notably, neither definition inherently requires materiality or physical existence. Rather, these economic definitions focus more on the perceived or anticipated usefulness and economic benefits derived from the asset, whether tangible or intangible.

Otherwise, such Sharia jurists may well be grounded by some economic theory placing intrinsic value in physical objects. The debate on the theory of value is one of the oldest and most fundamental in economics, touching on how the values of goods and services are determined and what underlies these valuations, revealing multiple competing perspectives without conclusively identifying physical tangibility as a requisite criterion for legitimacy (Dobb, 1975). For instance, classical economists such as Adam Smith and Karl Marx proposed labor-based theories, emphasizing the labor inputs embedded in goods rather than their inherent material qualities. Conversely, the marginalist and subjective theories, developed by Jevons, Menger, and Walras, shifted the focus away from objective labor inputs towards subjective utility and individual preferences. This historical evolution of value theory demonstrates the inadequacy of rigidly associating intrinsic value exclusively with materiality.

Compared to the neoclassical test of money discussed above, is intrinsic value and materiality as important as a secular base for Sharia verdicts? Treiblmaier (2022) further critiques the notion of intrinsic value, specifically within the context of cryptocurrencies. He emphasizes the ambiguity and philosophical—rather than objective or economic—nature of intrinsic value. Cryptocurrencies, he argues, should not be evaluated through an illusory intrinsic criterion but rather through their demonstrated utility, network properties, and broader

societal acceptance as money-like instruments. He also points out the misconception inherent in equating intrinsic value directly with production costs, such as the energy and computing resources expended in Bitcoin mining. While production costs might establish a minimum valuation threshold, actual market valuation primarily arises from subjective factors, including societal consensus, perceived scarcity, usability, and network effects. Thus, the value attributed to cryptocurrencies reflects a complex interplay of subjective market perceptions and adoption dynamics rather than merely tangible attributes.

This analysis directly challenges the jurists' implicit assumption that intrinsic value must necessarily originate from tangible assets or traditionally recognizable utility. The example of fiat currencies reinforces this critique clearly: modern fiat money rarely derives its value from tangible backing, such as gold reserves, yet maintains substantial value due to collective societal trust, widespread acceptance, legal recognition, and institutional frameworks rather than any intrinsic material properties. Similarly, cryptocurrencies derive their economic legitimacy from analogous trust and institutional recognition dynamics, albeit decentralized rather than state-centered.

Ultimately, the insistence by certain Sharia jurists on criteria of materiality and intrinsic value reflects a fundamental misunderstanding or oversimplification of contemporary economic realities and modern value theories. By recognizing that value emerges primarily from subjective market interactions, collective trust, institutional frameworks, and network effects, the legitimacy and economic relevance of cryptocurrencies like Bitcoin become much clearer. A proper appreciation of these theoretical contexts could substantially enhance juristic conceptualizations, avoiding misconceptions and confusion that have unnecessarily complicated the Muslim community's understanding of digital assets and their permissibility within Islamic jurisprudence.

Intangible Rights in Sharia

Sharia jurists may nonetheless incline toward assigning higher legal value to physical objects. Graeber (2014), in his seminal anthropological exploration of property rights, addresses precisely such tacit inclination in human nature. While popular

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perception commonly conflates ownership with physically holding or controlling a tangible item, Graeber illustrates how ownership in historical and contemporary legal systems is largely an abstract construct. It is defined by shared customs, legal codes, and broader institutional frameworks that collectively determine legitimate claims to use or transfer an asset—even absent physical possession. This understanding diverges significantly from the simplistic notion that physical dominance equates ownership, emphasizing instead how rules, norms, and institutional consensus underpin the very concept of ownership.

By tracing the evolution of Roman property laws and other legal traditions, Graeber shows how institutional acknowledgment rather than physical possession forms the bedrock of property rights. In Roman law, holding a physical item or occupying land was less critical than obtaining recognition from relevant legal bodies regarding one's rightful claim. Consequently, value frequently becomes detached from physicality; it emerges primarily from societal consensus, which validates an individual's or entity's legitimate control over an asset. Whether discussing land, currency, or intangible properties, the critical determinant of value is not material possession but collective, institutional affirmation.

Graeber's anthropological insights align with broader scholarship emphasizing that debts, obligations, and reputational factors can bear equal or greater weight compared to physical possession. Modern economies rely predominantly on complex webs of contracts and legal arrangements—mutually recognized "papers and promises"—rather than direct physical control, to facilitate transactions. Recognizing the non-physical foundations of ownership challenges the notion that economic systems depend purely on tangible resources, reinforcing instead the centrality of legal, cultural, and institutional consensus in defining property rights and shaping wealth circulation.

The prohibition fatwas discussed earlier rely heavily on the premise that valid property or objects of sale in Islamic law must possess physical existence. This argument, prominently influenced by the Hanafi school (Al-Zuhaili, 2017), does not accurately reflect the broader jurisprudential consensus nor fully capture the complex and nuanced nature of property rights recognized in classical and contemporary Islamic jurisprudence.

The Hanafi school traditionally emphasized physicality as an essential criterion for property rights, distinguishing sharply between tangible assets and intangible benefits (usufructs) (Husam El-Deen, 2018). They historically considered intangible usufructuary rights (such as rents or services) not validly tradable unless attached to tangible assets. Conversely, the majority of Islamic jurisprudence—including the Maliki, Shafi'i, and Hanbali schools—explicitly recognize intangible usufruct rights as independently valid objects of ownership and exchange (Al-Zuhaili, 2017). For these jurists, usufruct (manfa'ah) is recognized as a distinct category of property rights, allowing its owner full rights to use, transfer, or dispose of it. Thus, for instance, leasing (ijara) contracts are considered fully valid despite their fundamentally intangible nature, clearly contradicting claims that Sharia universally requires physical existence for valid property.

Contemporary Islamic jurisprudence further reinforces the acceptance of intangible rights. The IIFA explicitly recognized intellectual property rights as legitimate and protectable under Sharia (IIFA, 1988). Intellectual property rights, inherently intangible and non-physical, demonstrate that Islamic law accommodates evolving economic realities where value increasingly resides in knowledge, innovation, and creative outputs.

Moreover, fiat money, a cornerstone of modern economic systems, has been explicitly recognized as valid property by the IIFA despite lacking physical backing or intrinsic tangible value (IIFA, 1986). Fiat currencies function effectively due to institutional acceptance, collective societal trust, and legal recognition rather than any inherent physical quality, reinforcing the acceptability of intangible rights within Islamic economic frameworks.

Sharia jurisprudence also recognizes various other abstract, non-physical rights (Husam El-Deen, 2018). For instance, the right of qisas (retributive justice) is inherently intangible yet can be inherited and exchanged for monetary compensation by the heirs. This underscores that intangible rights are deeply embedded in Islamic jurisprudence, extending beyond mere financial or commercial contexts.

Thus, the insistence by certain jurists on physical existence and intrinsic material value as absolute requirements overlooks the broad and robust recognition

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of intangible property rights within Islamic law. The longstanding acceptance of intangible usufruct rights, intellectual property, fiat currency, and abstract legal rights such as qisas confirms that Islamic jurisprudence does not categorically demand physicality as a condition for property validity. Such insistence misrepresents the nuanced and flexible nature of Sharia's approach to property, thereby unjustifiably narrowing permissible economic activities, such as those involving digital assets like Bitcoin.

Confusing Gharar with Sale of Gharar

An overarching theme in the prohibition fatwas discussed above is that Bitcoin somehow violates the Sharia rules in relation to gharar, while differing in their articulation of how such Sharia violation occurs.

The fatwa issued by Prof. Dr. Ali al-Quradaghi notably highlighted Bitcoin's price volatility and uncertain future, asserting that these uncertainties represent clear cases of prohibited *gharar*, explicitly referencing the hadith prohibiting *gharar* sales. Al-Quradaghi interpreted Bitcoin's uncertain valuation and potential governmental bans as forms of uncertainty resembling the classical Islamic prohibition on ambiguous transactions, thus categorically declaring Bitcoin transactions invalid on these grounds.

Similarly, Egypt's Grand Mufti Dr. Shawki Ibrahim Allam (Dar al-Ifta al-Misriyya) explicitly invoked *gharar* as central to his prohibition, emphasizing Bitcoin's intangible nature, uncertain valuation standards, and unclear market mechanisms. His fatwa compared Bitcoin transactions directly to sales involving ambiguous commodities historically forbidden by jurists, such as counterfeit money or uncertain residues from metalworking. He extended the prohibition to Bitcoin mining and trading, reasoning that such activities inherently involve significant uncertainty, deceit (*ghish*), and speculative volatility—conditions explicitly addressed by the prophetic prohibition against *gharar*.

The fatwa of Palestine's High Fatwa Board similarly utilized *gharar* prominently, noting that Bitcoin's anonymity, lack of institutional guarantees, vulnerability to hacking, and extreme price fluctuations collectively represented severe forms of uncertainty (جهالة and غرر). They further argued that such uncertainty

poses economic harm to individuals and communities, thus justifying prohibition by analogizing Bitcoin transactions with historically forbidden contracts due to uncertainty.

The fatwa of Indonesia's Majelis Ulama Indonesia (MUI) also leaned heavily on *gharar*, describing cryptocurrencies broadly as instruments that inherently contain uncertainty, deception, and unjust enrichment through uncertain financial schemes akin to "pyramid schemes." Their interpretation appears slightly broader, extending *gharar* not merely to uncertain commodities, but to the structural and speculative aspects of cryptocurrencies themselves.

The International Union of Muslim Scholars (IUMS), despite its overall cautious stance, also invoked *gharar* indirectly. However, their fatwa focused more explicitly on institutional guarantees, state backing, and potential for societal harm rather than narrowly emphasizing uncertainty as inherent prohibition criteria. Thus, their use of *gharar* was less categorical and more nuanced compared to other fatwas.

Overall, reliance on *gharar* varied among these fatwas. While most directly linked their reasoning to the prophetic hadith prohibiting sales involving significant ambiguity, their broad interpretations were sometimes methodologically questionable. Classical jurists traditionally limited prohibited *gharar* to significant ambiguity directly affecting contract performance and deliverability. The contemporary fatwas expanded this concept extensively, incorporating broad speculative market dynamics, structural uncertainties, and non-physicality—potentially overstretching classical jurisprudential limits and thereby weakening their methodological rigor.

The concept of "gharar", commonly translated as uncertainty or ambiguity, carries significant jurisprudential implications in Islamic commercial law. Gharar refers to uncertainty or probabilistic outcomes concerning the critical elements of a contract. However, classical jurisprudence does not prohibit gharar per se; rather, it specifically forbids "Bay' al-Gharar" , or "sales involving excessive uncertainty." Thus, not all uncertainty invalidates transactions—only uncertainty directly undermining the fundamental conditions of a valid sale.

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Technically, the "Sale of Gharar" refers explicitly to transactions involving the unknown or sales contingent on the uncertain existence, description, or deliverability of essential aspects of the contractual elements (Al-Zuhaili, 2017). Classical jurists have identified numerous illustrative categories explicitly prohibited due to gharar. For instance, classical jurisprudential literature across Islamic schools enumerates examples including:

1. Inability to deliver the item: Selling something impossible or improbable to deliver.

2. Unknown type of price or object: Selling without clearly defining the object or its price.

3. Unknown attributes of either price or object: Ambiguity regarding the qualities or descriptions of what is being sold or its price.

4. Unknown quantity: Lack of specificity about the quantity or exact amount involved.

5. Uncertainty in time: Ambiguity concerning timelines or maturity of the transaction.

6. Two sales in one: Combining multiple unclear transactions into a single ambiguous agreement.

7. Selling something unlikely to remain intact: Items expected to perish or significantly degrade before delivery.

8. Sale by throwing pebbles: Determining sales arbitrarily by random throws, creating inherent uncertainty.

9. Sale by tossing items: Transactions involving arbitrary and uncertain exchange mechanisms.

10. Sale by touch: Buying an item purely through ambiguous tactile selection without proper inspection or definition.

These examples clarify that the essential prohibition focuses on transactions with ambiguities or probabilities affecting the fundamental exchange value or deliverability, rather than uncertainty per se. The concept closely aligns with

"jahala" (ignorance), emphasizing the lack of adequate knowledge or information critical for informed consent in contracts.

Given this classical understanding, Bitcoin transactions validated by blockchain technology clearly do not constitute "sales involving excessive uncertainty." Indeed, a Bitcoin transaction possesses considerably more certainty than many traditional financial transactions, ancient or modern (Antonopoulos, 2017; Nakamoto, 2008). Blockchain technology inherently ensures transparency, immutability, and specificity, addressing directly the classical jurisprudential concerns related to gharar. Specifically, Bitcoin meets the conditions of consideration specificity required by classical jurists:

1. Deliverability: Bitcoin is digitally delivered promptly upon validation. Such delivery, if registered in the blockchain, is virtually irreversable.

2. Specific type and description: Bitcoin transactions explicitly define both the digital asset (BTC units) and the exact quantity exchanged.

3. Clear price definition: Transactions occur at openly negotiated market rates or publicly established prices, eliminating price ambiguity.

4. No uncertainty in timelines: Bitcoin transactions and transfers are time-stamped and clearly recorded, removing ambiguity regarding the transaction's timing or maturity.

5. Integrity and permanence: Bitcoin does not degrade or perish, nor is it subject to arbitrary selection or random determination methods (such as tossing or throwing stones).

Therefore, Bitcoin transactions not only avoid violating classical prohibitions on gharar but also clearly fulfill all the juristic criteria for valid and certain contractual consideration, except those criteria inherently irrelevant to digital goods. Recognizing Bitcoin's compliance with classical juristic requirements underscores its legitimacy and permissibility within Islamic contractual frameworks, challenging the misguided interpretations presented by contemporary fatwas.

Further, contrary to the mistaken interpretations found in contemporary fatwas, Islam actively encourages certain forms of risk-taking as part of seeking

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legitimate returns—whether in worship, commerce, or other aspects of life. Numerous Sharia texts validate and commend calculated risk-taking, highlighting the flawed application of the gharar prohibition in modern rulings on Bitcoin.

First, Islamic teachings underscore that humans are inherently fallible, prone to errors and sin. However, individuals are not condemned outright in Sharia for sins; rather, they are continuously encouraged to repent and seek forgiveness. A well-known Hadith states: "If you did not commit sins, Allah would replace you with people who would sin and seek forgiveness from Him" (Sahih Muslim 2749). Thus, the very act of seeking forgiveness involves hopeful risk-taking—recognizing human imperfection and relying on divine mercy and generosity.

Second, historical commerce, especially international trade, carried substantial risks, including severe hardships such as theft, loss, harsh travel conditions, and even death (Ali, 2001). The Quraysh tribe, explicitly mentioned in the Qur'an (Surah Quraysh), regularly undertook risky trade journeys in winter and summer, reflecting Islam's positive outlook on commercial ventures despite inherent risks. Prophet Muhammad himself engaged actively in commerce, further validating risk-taking. The Qur'an explicitly encourages trade and economic activity, as seen in verses praising those who "...travel through the land seeking the bounty of Allah..." [73:20]. If gharar were inherently prohibited merely due to risk, it would contradict this clear encouragement of trade found in Islamic primary texts.

Third, in modern economic contexts, venture capital represents one of the riskiest forms of investment due to the high probability of startup failure. Yet, contemporary Sharia jurists widely acknowledge and commend venture capital as a legitimate form of commerce, recognizing its essential role in fostering innovation and economic growth. This acceptance starkly contrasts the double standards evident in fatwas prohibiting Bitcoin. Venture capital involves significantly greater risk than Bitcoin transactions, yet it remains widely accepted due to its clear economic benefits and alignment with the general Islamic principle of pursuing lawful, productive risk.

Hence, equating gharar with any form of risk or uncertainty profoundly misunderstands the classical Sharia position. Properly contextualizing gharar clarifies

that Sharia consistently supports and encourages calculated risk-taking that contributes positively to individual and collective welfare.

Trade in Financial Markets as Gambling

Several fatwas prohibiting Bitcoin have characterized speculation in cryptocurrency markets as equivalent to gambling (Qimar). The fatwas from jurists such as Prof. Dr. Ali Muhyiddin al-Quradaghi and others frequently reference the speculative nature of Bitcoin transactions, equating them to gambling due to their volatile prices and perceived unpredictability. Al-Quradaghi specifically notes that Bitcoin's speculative transactions are severely prohibited because they represent gambling (maysir), which is explicitly forbidden in Islam. Similarly, fatwas by institutions like Dâru'l-Iftâ al-Mısriyye and The Palestinian Dar Al Ifta emphasized the high risks and uncertainties associated with cryptocurrencies, classifying them as gambling due to their speculative nature, uncertain outcomes, and potential for significant financial losses.

In Fiqh, Qimar (gambling) is specifically defined as a transaction where two or more parties engage in an activity whose outcome is based purely on chance or uncertain events, with one party's gain directly correlated to the other's loss (Al-Milhim, 2008). Qimar inherently involves betting, speculation purely based on luck, and unjust enrichment without commensurate effort or legitimate consideration.

While some Sharia jurists express concern regarding Muslims engaging in crypto exchanges without adequate understanding of market risks, their utilization of gharar (uncertainty) and Qimar (gambling) as bases to declare Bitcoin impermissible demonstrates a critical misunderstanding. Gharar refers primarily to contractual ambiguity or sales involving unknown specifics, whereas Qimar directly pertains to gambling-like behavior, characterized by pure chance without productive effort or market analysis (Al-Zuhaili, 2017).

The issue of speculation in financial markets has been extensively addressed in contemporary fiqh discussions. Notably, the IIFA has tackled financial market operations multiple times, issuing resolutions that clarify the boundaries between legitimate market speculation and gambling-like behaviors (IIFA, 1990,

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1992)because\n\nit leads to meet the general human needs and discharge the spiritual and mate- rial duties relating to wealth.\n\nSecond: Although the origi- nal concept of financial markets is sound and its application is very much needed in the present-day context, yet their existing structure does not present an ex- ample to carry out the objective of investment and growth of capital within the Islamic framework. This situation requires serious academic efforts to be un- dertaken in collaboration between the Fiqh scholars and the economists, so that it may be possible to review the financial markets' existing systems, procedure and instruments and to amend what needs to be amended in accordance with Shariah principles.\n\nThird: The financial markets are established through ad- ministrative and pro- cedural systems; therefore, the adoption of these systems can be attributed to the legal maxim of Al-Masalih Al-Mursalah (unrestricted public interests. The IIFA avoided the wholesale banning of financial markets under the principle of "closing of means" (sadd al-dhara'i), acknowledging that despite malpractices by some participants, these markets primarily facilitate le- gitimate trade and economic benefit. The IIFA instead recommended enhanced regulation and the prohibition of explicitly haram practices such as selling with- out valid consideration.

Many contemporary Sharia jurists have countered the gambling analogy by em- phasizing the fundamental principle of permissibility (istishab) that governs trade and market activities (Allam, 2020). Trading is fundamentally permissible as it involves active efforts to analyze, evaluate, and pursue profitable opportu- nities, provided that other contractual Sharia violations such as fraud, gharar (contractual ambiguity), duress, or misrepresentation are not present. Thus, the legitimacy of transactions does not depend on market volatility or the mecha- nism through which trading is conducted but rather on adherence to fundamen- tal principles of valid contractual relationships.

Specifically addressing cryptocurrencies, Noh (2022) underscores that volatility and speculative behavior are not intrinsic qualities of cryptocurrencies them- selves but are driven by external market dynamics. Cryptocurrencies, when cor- rectly understood and analyzed, offer predictable market behaviors akin to tra- ditional financial instruments such as stocks and mutual funds. Hence, their

speculative nature does not inherently equate them with gambling. Instead, such financial activities reflect calculated risk-taking and informed investment decisions based on market analysis and available information.

Consequently, equating speculation in Bitcoin markets with gambling represents an outdated and misguided interpretation. Speculative behavior in financial markets, including crypto markets, has long been clarified in contemporary fiqh, affirming that market speculation based on informed decisions is permissible and fundamentally distinct from prohibited gambling. Thus, resurrecting the gambling argument specifically for Bitcoin is inconsistent with established Sharia principles and contemporary scholarly consensus.

Sharia Objective of No Harm as a Basis to Prohibit Bitcoin

Several fatwas prohibiting Bitcoin above relied explicitly on Maqasid al-Shari'ah (objectives of Islamic law), emphasizing the objectives of protecting wealth and preventing harm as foundational justifications for their rulings. Prof. Dr. Ali al-Quradaghi's fatwa prominently underscored the protection of wealth as a primary Sharia objective. Al-Quradaghi argued that Bitcoin transactions harm individuals and communities due to speculative volatility, lack of intrinsic economic benefit, and potential for financial losses. By invoking the prevention of harm principle (*la darar wa la dirar*), he justified prohibiting Bitcoin as a necessary means to protect Muslims from economic harm, speculative risk, and uncertain futures.

Similarly, Egypt's Grand Mufti, Dr. Shawki Ibrahim Allam, strongly relied on Sharia objectives, particularly emphasizing societal harm prevention and financial stability. He cited extensive economic risks, regulatory gaps, and opportunities for fraud and manipulation inherent in Bitcoin, asserting that such harms undermine the Sharia goal of safeguarding societal and individual wealth. His fatwa explicitly employed the hadith "Whoever deceives us is not one of us" and the principle of preventing harm to categorically declare Bitcoin impermissible.

The Indonesian Majelis Ulama Indonesia (MUI) fatwa also emphasized harm prevention, highlighting that cryptocurrencies facilitate deception (*taghrir*) and unjust enrichment. It described cryptocurrencies as inherently risky schemes

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resembling pyramid schemes, explicitly violating the Sharia objectives of protecting individual wealth and ensuring economic fairness. The MUI specifically pointed out the risk of harm from speculative bubbles, fraud, and widespread economic instability as justification for prohibition.

Palestine's High Fatwa Board similarly leveraged Sharia objectives, focusing particularly on Bitcoin's role in facilitating illicit activities due to its anonymity and lack of institutional oversight. They linked these features directly to societal harm, such as money laundering and criminal transactions, aligning their prohibition with broader Sharia objectives aimed at protecting societal integrity and individual wealth.

Lastly, the International Union of Muslim Scholars (IUMS) issued a nuanced prohibition strongly grounded in Sharia objectives and harm prevention principles. Their fatwa articulated specific concerns regarding societal harm through illicit transactions, money laundering, and systemic financial risks associated with Bitcoin. Nonetheless, their approach remained cautious, suggesting permissibility under certain exceptional circumstances where broader benefits outweighed potential harms, indicating a careful and context-sensitive application of Sharia objectives compared to the more rigid prohibitions cited above.

Sharia Objectives: Their Utility and Limitations in Usul al-Fiqh

Sharia objectives and Fiqh principles (Al-Qawaid al-Fiqhiyyah) hold substantial value within Islamic jurisprudence, particularly in structuring systematic and coherent interpretations of Sharia law (Auda, 2008). When employed correctly, these objectives offer critical insights and frameworks to jurists, enabling comprehensive conceptualization and accurate categorization of issues. This approach ensures broader, macro-level consistency across various fatwas and legal opinions. Ignoring these overarching objectives can result in fragmented and isolated legal rulings that may appear consistent individually but fail to achieve collective coherence or to reflect the broader ethical goals of Sharia.

Nevertheless, it is essential to recognize that reliance on Sharia objectives, while beneficial, is insufficient by itself to supersede clear, explicit primary texts (Qur'an and Sunnah). An undue or excessive reliance on Maqasid al-Sharia at

the expense of explicit primary texts risks introducing personal biases and subjective interpretations by jurists. This potential deviation aligns with the problematic practice of following personal desires (Ittiba' al-Hawa), which Sharia jurisprudence explicitly cautions against. Jurists who invoke Maqasid without strong and clear textual support run the profound risk of attributing to Allah commands He did not promulgate, thus facing severe punishment for such actions.

Bitcoin Through Sharia Objectives

While the fatwas discussed above emphasized the Sharia objectives of harm prevention and wealth protection as key reasons to prohibit Bitcoin, they evidently overlooked significant benefits offered by Bitcoin that strongly align with these very Sharia objectives. Most notably, Bitcoin serves exceptionally well as a means of exchange, closely fulfilling all the classical monetary characteristics identified by both traditional economic theory and Islamic jurisprudence (Ammous, 2018). It is highly durable due to robust cryptographic security, virtually impossible to counterfeit or corrupt, providing unprecedented integrity in monetary transactions. Its limited supply of 21 million coins ensures scarcity, inherently protecting against inflationary pressures, unlike fiat currencies managed by central banks. Bitcoin's ease of portability and divisibility also surpasses traditional money forms such as gold and physical currency, significantly enhancing economic efficiency. Additionally, Bitcoin is easily recognizable and verifiable, reducing transaction risks and facilitating smoother economic interactions.

Beyond its basic monetary features, Bitcoin dramatically reduces transaction and intermediary costs compared to traditional financial systems (Benston & Smith, 1976; Kim, 2017). Maintaining traditional fiat money involves substantial expenditures: national central banks, global supervisory institutions like the IMF and G20, commercial banks, international transfer networks such as SWIFT, and numerous regulatory entities. Bitcoin's decentralized blockchain eliminates most intermediary costs, allowing cheaper and faster transfers globally, significantly benefiting ordinary users and businesses, particularly in economically disadvantaged regions (Hazard et al., 2016).

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Furthermore, Bitcoin's decentralization and transparency provide unparalleled integrity and security (Nakamoto, 2008). Its tamper-resistant blockchain technology makes transactions transparent and irreversible, thus dramatically reducing fraud, corruption, and financial crimes. This transparency aligns perfectly with Sharia principles promoting honesty, integrity, and accountability. The pseudonymous yet publicly verifiable nature of Bitcoin transactions balances privacy concerns with public accountability, preventing illicit financial flows while preserving individual autonomy.

The substantial energy investment in Bitcoin mining—often criticized—is, in fact, integral to its value. This energy expenditure secures Bitcoin's network, maintaining trust and stability in a decentralized system (Antonopoulos, 2017; Lal et al., 2023). Rather than representing wasted resources, the energy consumed directly translates into securing a global financial network, safeguarding billions of dollars worth of transactions with unmatched reliability and security.

Finally, Bitcoin significantly democratizes access to financial services, particularly in regions lacking reliable financial infrastructure (Ammous, 2015). It provides a censorship-resistant payment method, protecting individuals from unjust economic exclusion and government manipulation. The growing network effect, as adoption increases globally, further amplifies these benefits, enhancing Bitcoin's effectiveness and resilience.

In sum, the fatwas's emphasis on the negative impact of Bitcoin on the protection of wealth and preventing of harm may align well with the objectives of international economic institutions while significantly understating Bitcoin's positive implications for individual and societal wealth protection and economic well-being. Rather than causing the harms emphasized by prohibitionist jurists, Bitcoin actually embodies core Sharia values: integrity, security, transparency, and economic fairness, directly supporting the Maqasid al-Shari'ah of protecting wealth and preventing genuine harm.

State Authority in Money

Several prominent fatwas prohibiting Bitcoin heavily emphasize the argument that legitimate currencies in Sharia must be issued and guaranteed by state

authority. The fatwa issued by The Palestinian Dar Al Ifta explicitly lists the absence of a recognized issuing authority as a primary reason for declaring Bitcoin transactions impermissible. It emphasizes that legitimate currencies under Sharia must be widely recognized and backed by a known and trusted state or authority. Bitcoin's decentralized issuance, lacking any authoritative backing or guarantee, was considered a fundamental flaw that disqualifies it from being recognized as a valid currency under Islamic law.

Similarly, the fatwa by Egypt's Dar al-Ifta underscores that the state's exclusive right to mint currency is critical in maintaining economic order, legal accountability, and protecting market stability. The fatwa regards Bitcoin's lack of state oversight as problematic because it undermines governmental authority, creates market instability, and leads to significant financial harm through speculative behavior and lack of legal recourse.

Prof. Dr. Ali Al-Quradaghi explicitly states that issuing currency is the exclusive right of the state or an authorized body designated by the state, invoking historical Sharia jurisprudence that identifies minting and coinage as duties and rights of the ruler or state authority. He further cites classical jurists who argued that minting money was essential for maintaining economic stability and protecting markets from counterfeit and corrupt currencies, linking monetary issuance directly with governmental responsibility.

Lastly, the International Union of Muslim Scholars (IUMS) in their fatwa argues similarly, highlighting the historical Sharia position that currency issuance must be controlled by a recognized governing authority. This fatwa specifically quotes classical Islamic jurisprudence, emphasizing that minting and monetary policy must be managed by a central authority to avoid harmful societal impacts and instability. According to the IUMS, Bitcoin fails this requirement due to its decentralized issuance and lack of state recognition, thus rendering it impermissible under Sharia principles.

Fallacies of the Monetary Policy Fatwas

The prohibition fatwas against Bitcoin based on the argument that currency issuance must exclusively be under state authority reflect significant

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misunderstandings of historical practices and classical Sharia jurisprudence. Classical Islamic jurists specifically referred to the act of minting physical coins, primarily gold and silver (Mawardi, 2017), rather than formulating broad rules applicable to modern monetary policy and fiat currencies. Applying their limited historical context indiscriminately to contemporary issues involving digital and fiat currencies constitutes a fundamental methodological error and misinterpretation of their original intent.

Historically, coinage and minting practices were frequently decentralized, with various degrees of centralized oversight emerging only gradually. Anthropologist David Graeber (2014) provides an extensive historical analysis of centralized versus decentralized minting, demonstrating that centralization was initially a pragmatic strategy intended primarily to standardize monetary units, prevent fraud, and ensure fairness in transactions. Centralization was not viewed as an inherently moral or religious necessity but rather evolved as an administrative tool to streamline economic interactions and foster trust in financial exchanges.

Moreover, coins historically served not only as monetary instruments but also as vital communication channels. Rulers often used coinage to announce their authority, legitimize their rule, and disseminate political or religious messages (Graeber, 2014). Such practices extended across civilizations and cultures, including early Islamic societies, indicating that the communicative function of coinage was universally recognized and widely utilized for political and administrative purposes.

The Prophet Muhammad's own practices offer significant insights into the permissibility of using foreign or decentralized currencies. Historical evidence indicates that the Prophet openly permitted the use of foreign coins, even when they contained images and inscriptions inconsistent with Islamic teachings (Hamdan, 1988). This practical allowance establishes an important Sunnah-based precedent. Had centralized coinage been a strict Sharia requirement, it would have been imperative for the Prophet to introduce a distinct Islamic currency explicitly forbidding the use of non-Islamic coins. The Prophet's tolerance of foreign-issued currency thus implicitly validates decentralized monetary systems, presenting a robust Sunnah-based argument for their permissibility

(ibaha). Jurists insisting otherwise must furnish substantial textual or evidentiary counterarguments to justify their stance.

Following the Prophet's era, the early Caliphs approached coinage with considerable caution, primarily regarding it as a medium of communication and economic facilitation rather than an instrument of personal or political aggrandizement (Hamdan, 1988). Caliph Omar, for instance, sanctioned limited minting of coins but explicitly replaced any anti-Sharia inscriptions with appropriate Qur'anic texts, prioritizing religious compliance and practical transaction integrity. This cautious and conscientious approach persisted through several generations, focusing primarily on coin purity and fraud prevention rather than explicit assertions of political or personal dominance.

A critical shift occurred during the reign of Caliph Abd al-Malik ibn Marwan, who initiated centralized minting explicitly for both political and religious motivations (Hamdan, 1988). Abd al-Malik's insistence on exclusive coinage served dual objectives: it addressed the removal of anti-Sharia expressions present on foreign coins and simultaneously asserted the political dominance and territorial sovereignty of the expanding Caliphate. Coins minted under Abd al-Malik prominently featured Sharia-compliant texts and occasionally the Caliph's depiction, reflecting a heightened awareness of coinage's communicative and symbolic power. While aligning with Sharia objectives in removing objectionable elements, Abd al-Malik's policies significantly transformed coinage from a purely practical instrument to a powerful political statement, setting a precedent for later rulers.

Subsequent Umayyad and Abbasid caliphs progressively exploited coinage's communicative and symbolic capacities for overt political, dynastic, and personal agendas (Al-Ejli, 2010). Abbasid coins frequently bore politically motivated inscriptions, strategically selected Qur'anic verses, and direct references to specific rulers or their heirs to legitimize claims of sovereignty and authority. For instance, Caliph al-Mansur minted coins explicitly naming his successor, al-Mahdi, and later Abbasid rulers such as al-Hadi and Harun al-Rashid used coin inscriptions to influence succession outcomes, assert political claims, and commemorate military victories. This increasingly overt politicization severely

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constrained juristic discourse, as critical or divergent views on monetary policy and coinage risked severe political repercussions and suppression.

Given this historical context, contemporary fatwas prohibiting Bitcoin solely due to its lack of state-issued authority fundamentally misinterpret and distort classical jurisprudential and historical precedents. Such fatwas inadvertently perpetuate outdated political narratives historically driven by rulers' personal ambitions and political expediency rather than authentically reflecting Sharia principles. Bitcoin, as a decentralized digital currency, fundamentally aligns with early Islamic precedents established by the Prophet Muhammad, who clearly permitted decentralized and foreign currencies. Its decentralized structure embodies transparency, security, and fairness—key Islamic values historically pursued through coinage regulation. Therefore, Bitcoin does not inherently violate any authentic Sharia requirements regarding currency issuance. Instead, its decentralized nature closely mirrors early Islamic economic practices, supporting its legitimacy and permissibility as a modern financial instrument that reflects authentic Islamic jurisprudential principles.

Government Failure vs Algorithmic Governance

Instead of arguing how Bitcoin violates the requirements on money, Sharia jurists may be better served taking a closer look at Bitcoin's monetary governance structure and how its decentralized nature closely mirrors early Islamic economic practices, supporting its legitimacy and permissibility as a modern financial instrument that reflects authentic Islamic jurisprudential principles. Bitcoin's decentralized cryptographic algorithm achieves the original objective of centralized minting—preventing forgery and fraud—far more effectively than traditional state-issued currencies (Antonopoulos, 2017). The Bitcoin blockchain employs a rigorous cryptographic validation process known as Proof-of-Work (PoW), where miners solve complex mathematical puzzles to verify and record transactions. This process ensures the integrity, transparency, and immutability of transaction records, providing robust protection against forgery and counterfeit attempts. Unlike state-issued currencies, which are periodically subject to counterfeiting and fraud despite extensive oversight, Bitcoin's

algorithm inherently secures every transaction, offering a significantly higher degree of protection and trustworthiness.

Institutionally, the governance of Bitcoin offers distinct advantages compared to traditional fiat currencies managed by governments and central banks. While government intervention is often justified as necessary to prevent market failures such as fraud, corruption, and malpractices, empirical evidence shows frequent governmental and institutional failures in managing fiat currencies (Anwar, 2023). This is particularly pronounced in developing and Muslim-majority countries as shown in Table 1 below, where governmental mismanagement frequently leads to severe currency devaluation, inflation, and economic instability, resulting in significant wealth erosion among their populations.

In contrast, Bitcoin has demonstrated remarkable stability over the past decade, significantly outperforming many fiat currencies in terms of maintaining its purchasing power. Unlike fiat currencies, which are subject to arbitrary adjustments, inflationary policies, and political manipulation, Bitcoin operates on a transparent and predictable monetary policy governed algorithmically rather than politically. Its fixed supply limit and decentralized governance closely resemble the gold standard era, reducing risks associated with central banks' private interests or governmental misuse of monetary policy. Therefore, criticisms against Bitcoin for lacking governmental issuance and central bank oversight ignore substantial historical evidence of the institutional failures inherent in traditional fiat systems, highlighting Bitcoin's institutional robustness and alignment with the fundamental objectives of Sharia in protecting wealth and ensuring economic fairness.

Bitcoin as Legal Tender: A Challenge to the State Authority Arguments

A consistent theme among the fatwas prohibiting Bitcoin is the claim that, in Sharia, the issuance and recognition of currency must come from a legitimate state authority. However, this line of reasoning is increasingly untenable in light of real-world developments. Notably, El Salvador adopting Bitcoin as legal tender. El Salvador has historically suffered from monetary instability, including high inflation and a fragile banking system. As a response to ongoing economic

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turbulence and policy failures, the country fully dollarized its economy in 2001, abandoning its own currency (the Salvadoran colón) in favor of the U.S. dollar. In 2021, El Salvador became the first country in the world to adopt Bitcoin as legal tender (Secretaría de Prensa, 2021). Under the Bitcoin Law, passed by the Legislative Assembly, all economic agents are required to accept Bitcoin as payment when offered by someone acquiring a good or service. El Salvador's move was driven not by ideological support for cryptocurrency but by practical considerations: inclusion of the unbanked, reduction of remittance fees, and creation of a tech-driven economic environment (Alonso et al., 2023)namely the Monetary Integration Law (MIL. Their embrace of Bitcoin was a strategic pivot in light of state failure in traditional monetary governance.

The fatwas rejecting Bitcoin repeatedly assert that state recognition is a requirement for monetary legitimacy in Sharia. However, now that a sovereign government has officially recognized Bitcoin as legal tender, this foundational argument begins to unravel. If state authority is essential, how do jurists respond when states actually endorse Bitcoin? Will they urge El Salvador to return to the USD? Would a return to USD be considered more "Sharia-compliant" simply because they involve state backing, despite the massive harm they've historically inflicted on local economies? If any, such Sharia scholars will at least have the IMF thanking them (IMF Staff, 2022).

In conclusion, the endorsement of Bitcoin by actual states—not hypotheticals—forces a fundamental reassessment of the fatwas prohibiting Bitcoin on the basis of lacking state authority. The Sharia scholars' insistence on the necessity of state authority appears increasingly inconsistent and selective. Their argument collapses when confronted with the reality that Bitcoin has been state-sanctioned in contexts where traditional fiat currencies failed, and where Sharia objectives like economic justice, transparency, and wealth protection may be better served. These developments render such arguments obsolete and expose the need for more principled and context-aware juristic analysis.

Fiat vs Bitcoin: Empirical Evidence

Many Muslim-majority countries today face dire economic challenges, including ongoing political unrest, institutional weakness, military conflicts, and structural economic inefficiencies. These realities significantly hinder the ability of governments and central banks to exercise sound and effective monetary policy. As a result, their currencies often suffer from persistent inflation, erosion of public trust, and widespread depreciation in value—outcomes that directly contradict the Sharia objective of wealth protection.

The table below, compiled by the SESRIC (a subsidiary organ of the Organisation of Islamic Cooperation), reports the average annual inflation rates of several Muslim countries between 2018 and 2023. Notably, many of these countries experienced double-digit inflation, which reflects severe devaluation of national currencies over a sustained period.

Table 1. *Average Annual Inflation Rates in Selected Muslim Countries* **(2018–2023).**

Country	2018	2019	2020	2021	2022	2023	Average
Sudan	63.29	50.99	163.26	359.09	138.81	256.17	171.94%
Lebanon	6.06	2.89	84.88	154.76	171.20		83.96%
Suriname	30.23	34.68	36.43	40.21	45.75	47.01	39.05%
Iran	6.94	4.39	34.89	59.12	52.45	53.27	35.18%
Türkiye	16.33	15.18	12.28	19.60	72.31	51.17	31.15%
Yemen	33.65	15.69	21.67	31.46	29.51	14.91	24.48%
Sierra Leone	16.03	14.81	13.45	11.87	27.21	42.88	21.04%
Nigeria	12.09	11.40	13.25	16.95	18.85	25.12	16.28%
Egypt	17.53	14.53	12.87	10.85	11.45	10.21	12.91%
Uzbekistan	20.85	13.88	5.70	4.50	8.50	23.52	12.83%
Pakistan	3.92	6.74	10.74	8.90	12.15	29.18	11.94%
Guinea	9.83	9.47	10.60	12.60	10.50	8.31	10.22%
Kazakhstan	13.30	5.09	6.10	19.48	11.21	5.90	10.18%

Source: The Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC).

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The inflation data in Table 1 illustrate that despite centralized monetary authority, these nations failed to safeguard the economic value of their currencies. The loss in purchasing power and the increased cost of living have dramatically affected households, businesses, and entire communities. This undermines the fatwas' claim that government-issued fiat currencies inherently serve the objective of wealth protection better than decentralized alternatives like Bitcoin.

Bitcoin, despite being criticized for volatility, has over the past decade outperformed many of the fiat currencies listed above. It has not suffered from the institutional deterioration, political capture, or inflationary policies that afflict many developing nations. Therefore, from the perspective of preserving wealth—a clear maqṣad (objective) of the Sharia—Bitcoin may, in fact, be a superior alternative to fiat currencies in politically and economically unstable Muslim countries.

The empirical literature on Bitcoin highlights a variety of benefits that contribute to its appeal as a digital currency and investment asset. Notably, several studies emphasize its potential in enhancing portfolio diversification due to its low correlation with traditional financial assets such as stocks and bonds (Bouri et al., 2020)we compare the safe-haven properties of Bitcoin, gold, and the commodity index against world, developed, emerging, USA, and Chinese stock market indices for the period 20 July 2010–22 February 2018. We apply the wavelet coherency approach and show that the overall dependence between Bitcoin/gold/ commodities and the stock markets is not very strong at various time scales, with Bitcoin being the least dependent. We study the diversification potential at the tail of the return distribution through wavelet value-at-risk (VaR. It has been found that Bitcoin exhibits a unique behavior that distinguishes it from traditional commodities and fiat currencies, offering diversification advantages for investors looking to mitigate risks associated with market volatility (Al-Mansouri et al., 2025)with a particular focus on its store of value function. We employ a suite of wavelet techniques, including Wavelet Transform (WT. This characteristic positions Bitcoin as an effective tool for portfolio managers aiming to optimize returns while maintaining a lower level of risk (Hossain, 2021).

In addition to its diversification benefits, Bitcoin is often regarded as a hedge against economic uncertainty. Various studies suggest that Bitcoin may serve this function, particularly in turbulent economic climates, where it can act as a refuge for investors amidst fluctuating traditional markets (Disli et al., 2021) crude oil and cryptocurrency as a safe haven for traditional, sustainable, and Islamic investors during the COVID-19 pandemic crisis. Using Wavelet coherence analysis and spillover index methodologies in bivariate and multivariate settings, this study examines the correlation of these assets for different investment horizons. The findings suggest that gold, oil and Bitcoin exhibited low coherency with each stock index across almost all considered investment horizons until the onset of the COVID-19. Conversely, with the outbreak of the pandemic, the return spillover is more intense across financial assets, and a significant pairwise return connectedness between each equity index and hedging asset is observed. Hence, gold, oil, and Bitcoin do not exhibit safe-haven characteristics. However, by decomposing the time-varying co-movements into different investment horizons, we find that total and pairwise connectedness among the assets are primarily driven by a higher-frequency band (up to 4 days. For example, during heightened periods of economic policy uncertainty, Bitcoin tends to perform better, suggesting that it can absorb shocks that impact conventional financial instruments, thus offering a degree of protection to investors (Conlon et al., 2020)Ethereum and Tether from the perspective of international equity index investors. Bitcoin and Ethereum are not a safe haven for the majority of international equity markets examined, with their inclusion adding to portfolio downside risk. Only investors in the Chinese CSI 300 index realized modest downside risk benefits (contingent on very limited allocations to Bitcoin or Ethereum . Further empirical evidence also shows that not accepting or including Bitcoin in portfolios exposes investment portfolios to higher risks (Noh, 2022), obviating the paradoxical argument that Bitcoin is inherently risky.

Overall, the literature illustrates a multifaceted perspective on Bitcoin that encompasses its role as a diversified investment, a hedge against uncertainty, a viable payment method, and a profitable mining opportunity. Together, these benefits contribute to Bitcoin's growing prominence in financial markets and its potential to reshape traditional economic interactions.

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Abusing the "Blocking of Means" Principle

Several fatwas prohibiting Bitcoin have invoked the principle of "blocking of means" to justify their position. Prominently, Prof. Dr. Ali Al-Quradaghi and the International Union of Muslim Scholars (IUMS) explicitly utilized this principle, arguing that the use and trading of Bitcoin should be prohibited due to its potential to facilitate harmful outcomes such as gambling, fraud, money laundering, and speculative trading leading to substantial financial losses. The other fatwas above make use of this principle implicitly, especially when harm prevention and Sharia objectives are used as a basis for such fatwa. These fatwas contend that, given the uncertainty and volatility of cryptocurrencies, their use could inevitably or predominantly lead to Haram practices and detrimental societal impacts, thus justifying preventive prohibition.

"Blocking of means" is an established principle in Usul al-Fiqh, which allows jurists to prohibit actions that are permissible in themselves if they certainly or most probably lead to prohibited (Haram) outcomes (Kamali, 2003). For this principle to be legitimately applied, specific conditions must be met. First, the prohibited outcome must be unequivocally recognized as Haram in Sharia. Second, the means in question must lead certainly or at least with high probability to that prohibited outcome. Classic juristic literature offers clear examples to illustrate these criteria. An example of high probability: Acts explicitly leading to adultery, such as private seclusion (khalwa) with a non-mahram, are prohibited since they strongly facilitate adultery. An example of low probability: The sale of grapes remains permissible despite the potential of being turned into wine, given that this harmful outcome is neither certain nor highly probable.

In the context of Bitcoin, the invocation of "blocking of means" faces significant methodological issues. First, the fundamental requirement of a clearly identified Haram outcome is inadequately addressed by jurists prohibiting Bitcoin. As previously discussed, many alleged Haram attributes such as gharar (uncertainty), intangibility, and decentralization lack robust Sharia grounding. Specifically, gharar as used in their arguments was misinterpreted, intangible assets are widely accepted in modern Sharia jurisprudence, and decentralized foreign money has historical precedence as permissible. Moreover, Bitcoin has

demonstrated clear benefits in protecting Muslim wealth, aligning positively with Sharia objectives. Without a clearly established Haram end, the principle of "blocking of means" loses its foundational justification.

Second, even assuming for argument's sake that specific Haram outcomes exist, the fatwas fail to substantiate how Bitcoin's use would certainly or highly probably lead to these outcomes. For example, the speculative nature and volatility of cryptocurrencies, while introducing financial risk, do not inherently equate to gambling or fraud, as these are distinctly characterized by intentions and behaviors, not market volatility alone. Thus, the application of "blocking of means" here rests on assumptions rather than concrete evidence linking Bitcoin usage inherently and consistently to these prohibited outcomes.

Third, the application of "blocking of means" contradicts the fatwas' foundational claim that Bitcoin is neither money nor property. The application of this principle implicitly acknowledges Bitcoin as property or at least as an asset capable of facilitating prohibited transactions. This recognition contradicts the fatwas' earlier stance negating Bitcoin's status as legitimate property or currency. If Bitcoin truly lacks economic value or recognition as property, its use as a means towards prohibited ends becomes inherently implausible. Therefore, invoking the "blocking of means" principle in this context appears logically and methodologically inconsistent.

As such, the fatwas prohibiting Bitcoin based on the principle of "blocking of means" exhibit significant methodological flaws, primarily due to unclear identification of Haram outcomes, insufficient proof linking Bitcoin to these outcomes, and internal contradictions regarding Bitcoin's status as property or currency. These issues substantially undermine the validity of such prohibitive rulings.

Conclusion

The debates surrounding Bitcoin's Sharia legitimacy, as examined in this paper, reveal that many prohibition fatwas, though grounded in sincerely held concerns, rely on incomplete conceptualizations of Bitcoin's technological and economic features, or reference secondary principles (e.g., maslahah and public

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policy) without grounding them in direct textual or analogical evidence. Although all jurists rightly emphasize the importance of preventing harm (darar), any prohibition ruling that lacks rigorous substantiation may inadvertently stifle legitimate innovations that align with the broader objectives of Sharia.

By contrast, fatwas that methodically apply Usul al-Fiqh—especially a careful assessment of textual sources, valid analogical reasoning, and accurate factual understanding (taṣawwur ṣaḥīḥ)—often conclude that Bitcoin can be deemed permissible (mubāḥ) absent a clearly established textual prohibition. From a methodological standpoint, the most robust fatwas on Bitcoin exemplify how classical jurisprudential concepts (e.g., ʿurf, māl, sadd al-dharāʾiʿ) can accommodate evolving financial technologies. As long as the asset in question proves its functionality, social acceptance, and absence of fundamental prohibitions (e.g., interest, fraud, or excessive uncertainty), it stands as permissible by default. Where volatility and speculation exist, classical jurists have historically distinguished between intrinsic asset features and abusive market behaviors—acknowledging that misuse alone does not necessarily invalidate an asset's permissibility under Sharia.

Yet, in highlighting these shortcomings, my intent is not to undermine the scholarly status or sincerity of any jurist. Rather, I aim to demonstrate that sincerity and reputation alone do not exempt a fatwa from critical evaluation according to Islamic law's highest methodological standards. At the same time, I affirm deep respect for classical jurisprudential authority and the cautious approaches employed by Sharia jurists. This paper reflects scholarly humility: I acknowledge the complexity of emerging financial technologies like Bitcoin and do not claim infallibility in my conclusions. However, a core principle in usuli discourse is that even established authorities must thoroughly examine both the factual realities and the primary textual sources before issuing prohibitions that have widespread implications for Muslim society. Where such a process reveals internal contradictions or technical misunderstandings, it is the jurist's duty to revisit and refine their verdict.

By situating my critique in a classical framework, I intend to honor rather than diminish the legitimate standing of recognized jurists and Sharia bodies. This

approach reinforces the idea that robust legal derivation (ijtihad) hinges on both textual knowledge and accurate subject awareness (*taṣawwur ṣaḥīḥ*). Without these elements, judgments risk conflating intrinsic asset characteristics with market abuses, thereby preempting potentially beneficial innovations.

Nevertheless, caution remains warranted. Many individuals lack adequate understanding of Bitcoin's mechanisms, including its decentralized network, cryptographic underpinnings, and capacity for legitimate use. Without addressing these complexities, fatwas risk conflating Bitcoin's inherent properties with malpractices or broader economic concerns. The answer, therefore, lies not in a blanket rejection of new financial instruments but in applying thorough fact-finding and strong juristic methodology. Only then can Muslim communities benefit from the potential efficiency, transparency, and global accessibility that technologies like Bitcoin offer—while mitigating tangible risks such as fraud, regulatory non-compliance, or unscrupulous speculation.

Going forward, Muslim jurists and policymakers are encouraged to collaborate with technical experts, economists, and industry practitioners. Such interdisciplinary engagement can bridge gaps in understanding, helping ensure that future Sharia rulings on digital assets reflect both technological realities and deep fidelity to foundational Islamic principles. In the near term, these efforts may include clarifying how established doctrines of property (*māl*), valid exchange (*ṣarf*), and risk management apply to intangible, digital environments. In the long term, a well-grounded Sharia approach to cryptocurrency can serve as a model for integrating new financial technologies without compromising the core imperatives of Sharia.

Ultimately, whether Bitcoin is ruled halāl or harām must rest on textual grounding, coherent analogical reasoning (qiyās), and clear evidence of potential benefit or harm (*maslaḥah* and *mafsadah*). This research highlights where certain prohibition fatwas might fall short in these respects and urges reconsideration based on more rigorous, unbiased scholarship. I conclude by reiterating that mycritique aims to uphold—rather than dismiss—the foundational caution and respect due to Sharia authorities, while encouraging them to stay firmly aligned with classical Usul al-Fiqh standards in assessing emergent financial phenomena.

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Acronyms

Table 2. *Sharia Acronyms*

Term / Acronym	Arabic Script	Definition / Significance
Sharia	الشريعة	The overarching Islamic moral and legal system, encompassing all aspects of faith, worship, and law.
Fiqh	الفقه	Islamic jurisprudence; the human understanding and application of Shari'ah principles.
Usul al-Fiqh	الفقه أصول	The principles or methodology through which Islamic legal rulings are derived from primary sources.
Qur'an	القرآن	Islam's primary holy text and supreme source of Shari'ah.
Sunnah	السنة	The teachings, practices, and traditions of the Prophet Muhammad (peace be upon him).
Ijma'	إجماع	Consensus of juristic Sharia scholars on a legal or doctrinal point.
Qiyas	قياس	Analogical reasoning that extends an existing Shari'ah ruling to a new circumstance based on a shared operative cause ('illah).
Maslahah	مصلحة	Public interest or welfare, often used as a secondary principle when explicit textual guidance is absent.
Urf	عرف	Custom or social convention; can inform rulings when not contradicted by primary evidence.
Sadd al-Dhara'i'	الذرائع سد	Blocking the means to harm; a preventative measure invoked to avoid leading to prohibited outcomes.

Istishāb	استصحاب	Presumption of continuity; the default ruling of permissibility (*ibāḥah*) in non-worship matters unless proven otherwise.
Gharar	غرر	Excessive uncertainty or risk within a transaction, forbidden when it undermines contractual clarity.
Qimār	قمار	Gambling or chance-based transactions involving unjustified gain/loss; prohibited in Shari'ah. Sometimes called Maysir since the two concepts overlap.
Riba	ربا	Usury or interest; charging or paying interest on loans is forbidden in Sharia.
Maqasid al-Sharia	الشريعة مقاصد	The higher objectives of Islamic law, which include preservation of religion, life, intellect, lineage, and wealth.
Ijtihād	اجتهاد	A jurist's utmost effort to derive or interpret legal rulings from the primary sources.
Fatwa	فتوى	A formal ruling or opinion on a point of Islamic law given by a qualified mufti or scholar.
Mufti	مفتي	A qualified jurist in Sharia law qualified to issue fatwas.
Ḍarb al-Sikkah	السكة ضرب	The classical concept of state coin minting; often cited to argue currency issuance is a government prerogative.
Māl	مال	Property or wealth recognized in Shari'ah; anything valuable, beneficial, and legally permissible to own or trade.

The Quest for Fairness and Fulfillment: A WVS-Based Study on Income Equality and Life Satisfaction in North Macedonia

Aytuğ Zekeriya Bolcan

Abstract: This study investigates the relationship between income equality acceptance and life satisfaction in North Macedonia using World Values Survey data across multiple waves. Employing ordinal logistic regression, the analysis controls for demographic, socioeconomic, and cultural factors. Findings reveal that individuals who accept income inequality as a motivational necessity report higher life satisfaction, while those favoring greater equality exhibit lower well-being, potentially reflecting frustrations with perceived systemic unfairness. These results highlight the significance of distributive justice in shaping subjective well-being within a transitional economy. The study provides insights for policymakers to promote equitable growth and social cohesion in post-socialist contexts.

Keywords: Income Equality Acceptance, Life Satisfaction, Distributive Justice, Transitional Economy, North Macedonia

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Introduction

North Macedonia's path toward establishing a market-oriented economy traces back to 1991, following the dissolution of the Socialist Federal Republic of Yugoslavia. Upon gaining independence, the country faced immediate challenges stemming from the loss of traditional Yugoslav markets, external trade embargos, and insufficient domestic capital (Bartlett, 2007). In the early 1990s, macroeconomic instability was exacerbated by rising inflation and widespread unemployment, reflecting a complex transitional environment marked by political uncertainties and limited institutional capacity. Privatization efforts were launched to transfer state-owned enterprises into private hands, but this process proceeded unevenly, often constrained by fragile legal frameworks and capacity deficits in regulatory bodies (Mojsoska-Blazevski, 2017).

Throughout the late 1990s and early 2000s, North Macedonia sought to stabilize its economy by introducing structural reforms aimed at liberalizing trade, improving fiscal discipline, and attracting foreign direct investment (FDI). These measures helped moderate inflation and provided an initial impetus for growth; however, high unemployment rates persisted, and informal economic activities remained significant (Sanfey, Milatović and Krešić, 2016). At the same time, the country pursued deeper institutional reforms, such as strengthening the judiciary and enhancing governance mechanisms to address pervasive corruption concerns. This phase also saw advancements in anti-corruption measures, partly in response to requirements and recommendations from international organizations like the World Bank and the International Monetary Fund (IMF).

Entering the mid-2000s, North Macedonia embarked on more systematic efforts to align its laws and regulations with the European Union's *acquis communautaire*, anticipating eventual EU membership. By prioritizing structural investment in education and technological upgrades, policymakers hoped to stimulate productivity gains, particularly in industries such as textiles and automotive components. Nonetheless, income disparities and regional development imbalances persisted. While urban centers like Skopje benefited from increased FDI and infrastructural enhancements, rural areas lagged behind, evidencing substantial gaps in employment opportunities and public services. As a result,

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poverty reduction became a core theme in government strategies, supported by international donor programs. Recent years (2015–2023) have witnessed ongoing diversification of economic activities, with service-oriented sectors and digital entrepreneurship gaining traction. North Macedonia's progress toward Euro-Atlantic integration—including its successful NATO accession—has further shaped policy agendas, particularly in the spheres of economic governance and institutional modernization. However, the region's susceptibility to global economic shocks, illustrated vividly during the COVID-19 pandemic, underscores the vulnerability of small, transition economies. Within this dynamic context, issues of income distribution and social equity have gained renewed urgency, prompting researchers and policymakers alike to investigate how structural transformations intersect with individual perceptions of well-being.

Understanding North Macedonia's socio-economic trajectory is vital for analyzing contemporary attitudes toward income equality and life satisfaction. Macroeconomic trends and institutional reforms, coupled with citizens' lived experiences of transition, directly influence how individuals evaluate both their financial standing and broader quality of life. The World Values Survey (WVS), which captures public sentiment in transitional societies, offers a uniquely valuable lens through which to study these evolving preferences. In the following sections, we build upon this contextual foundation to explore the interplay between acceptance of income inequality and subjective well-being, thereby contributing to the literature on post-socialist transitions and economic reforms.

Research Aims and Objectives

The primary objective of this study is to investigate how preferences for income equality—versus acceptance of income inequality—shape individual life satisfaction in North Macedonia, utilizing data from the World Values Survey (WVS). While numerous cross-national studies have explored the impact of inequality on subjective well-being (Alesina, Di Tella and MacCulloch, 2004); (Helliwell, Layard and Sachs, 2019), there remains a gap in understanding how this relationship manifests in transitional economies such as North Macedonia. The country's economic reforms, political transformations, and evolving social norms

since independence provide a compelling backdrop against which to examine the nuances of income equality preferences. By grounding the analysis in the North Macedonian context, this research not only contributes to the broader literature on happiness and economic inequality but also offers insights that may guide policymakers in shaping equitable and inclusive development strategies.

With the overarching purpose established, the central research question guiding this chapter is:

> "How does the acceptance or preference for income equality (versus income inequality) impact individual life satisfaction in North Macedonia, when controlling for demographic, socioeconomic, and cultural factors based on data from the World Values Survey?"

Addressing this question is of significant academic and policy relevance. Scholars in comparative politics and economics have long debated the role that equitable income distribution plays in shaping perceptions of social justice, trust in institutions, and overall societal welfare. Empirically assessing these dynamics within North Macedonia—a country navigating the aftermath of socialist legacies, market liberalization, and ongoing European integration—provides a unique lens through which to evaluate the broader claim that equitable economic structures can foster greater individual happiness. Additionally, policymakers may leverage insights from this research to design interventions aimed at mitigating social tensions and promoting inclusive growth strategies.

To achieve the broader research goal and adequately answer the stated question, the following sub-objectives will guide the empirical analysis:

1. **Temporal Trends:** Examine how both income equality preferences and life satisfaction have evolved across different WVS waves available for North Macedonia (e.g., 2005–2009, 2010–2014, 2017–2020).

2. **Demographic Variations:** Investigate how individual-level characteristics—such as age, gender, marital status, and education—correlate with the acceptance of income equality and self-reported life satisfaction.

By systematically addressing these sub-objectives, the study aims to present a holistic view of how perceptions of income distribution intersect with subjective

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well-being in North Macedonia. In the subsequent section, we will delve into a review of the relevant literature and theoretical perspectives, thereby framing our empirical analysis within established debates on inequality, redistribution, and life satisfaction.

This chapter unfolds in several distinct yet interrelated sections to offer a comprehensive analysis of how income equality acceptance impacts life satisfaction in North Macedonia. Following this introduction, the *Theoretical Framework* section establishes the conceptual foundations, examining key constructs such as life satisfaction, distributive justice, and fairness, alongside relevant economic and psychological theories (e.g., the Easterlin Paradox, Equity Theory). Next, the *Literature Review* surveys existing empirical studies on inequality and subjective well-being, highlighting critical gaps pertaining to North Macedonia and the Balkan region. The *Data and Methodology* section then details the World Values Survey (WVS) dataset, defines the variables of interest, and justifies the use of ordinal logistic regression. Subsequently, *Empirical Findings* present the core results, focusing on the estimated effects of income equality preferences on life satisfaction. Finally, the *Conclusion* recaps major insights, considers limitations, and suggests avenues for future research and policy interventions, thereby consolidating the chapter's contribution to the understanding of fairness and subjective well-being in post-socialist settings.

Theoretical Framework on Income Equality and Life Satisfaction

Conceptualizing Income Equality and Life Satisfaction

Income equality, at its core, refers to an economic and social environment where individuals receive relatively similar incomes, thereby limiting wide disparities in wealth. Within academic discourse, various scholars conceptualize income equality not merely as an outcome measured by quantitative indicators—like the distribution of resources across a population—but also as a normative concept tied to notions of fairness and social justice (Wilkinson and Pickett, 2009). While the Gini coefficient is the most widely recognized measure of income inequality, other metrics such as the Palma ratio or the Theil index complement

the discussion by offering distinct ways to gauge distributional patterns. In this sense, income equality and income inequality exist on a continuum, with the former suggesting a narrower gap in earnings and the latter denoting more pronounced economic disparities.

Scholars note that perceptions of income distribution can diverge from empirical measures of inequality. Individuals may harbor subjective interpretations based on personal experiences, media portrayals, and cultural narratives. For instance, two societies with identical Gini coefficients might exhibit markedly different attitudes toward inequality, depending on the prevailing cultural norms and expectations around distributive outcomes (Diener, Oishi and Tay, 2018). This distinction between objective and perceived inequality underscores the importance of examining not only actual economic conditions but also how these conditions are interpreted through the lens of fairness, reciprocity, and social trust.

Life satisfaction is a key component of subjective well-being research, encompassing an individual's overall evaluation of the quality and meaningfulness of their life. In contrast to momentary affect or emotional states, life satisfaction is generally viewed as a broader, more stable cognitive appraisal (Diener, Oishi and Tay, 2018). Researchers have identified multiple determinants of life satisfaction, ranging from personal factors—such as health, employment status, and family relationships—to macro-level influences like social cohesion and institutional quality. Indeed, the extent to which a society is perceived as equitable can enhance or erode life satisfaction, as individuals often benchmark their outcomes against others, invoking concepts of distributive justice and fairness in the process.

In transitional contexts like North Macedonia, where shifts from a socialist past to a market-oriented economy have reconfigured labor markets, social policies, and institutional frameworks, perceptions of income distribution can carry heightened significance. Citizens navigating economic reforms and potential political uncertainties may place greater weight on issues of fairness and equity, especially if these transitions produce uneven gains. Consequently, understanding how income equality acceptance shapes life satisfaction becomes

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particularly salient. The World Values Survey (WVS) offers a unique empirical avenue to capture these perspectives, enabling scholars to connect macro-level transitions to individual subjective assessments. In doing so, it illuminates how cultural norms, historical legacies, and contemporary economic realities converge to influence both the concept of income equality and the lived experience of well-being.

Relevant Economic and Psychological Theories

Economic and psychological theories offer valuable perspectives on how individuals perceive and respond to disparities in income distribution, and how these perceptions can influence overall life satisfaction. These frameworks help explain why two individuals with similar material conditions might experience different levels of subjective well-being. Moreover, understanding such theories is especially pertinent in transitional contexts like North Macedonia, where legacies of socialist governance and contemporary market reforms intersect, shaping both the distribution of income and public attitudes toward fairness.

One of the earliest and most influential contributions to this discourse is the Easterlin Paradox, first articulated by Richard Easterlin (1974). He observed that while wealthier individuals within a country often report higher subjective well-being than their poorer counterparts, increases in a nation's average income over time do not necessarily translate into higher overall happiness. This paradox implies that relative measures of income—how individuals compare their earnings to others—may be more important for well-being than absolute income levels. In a post-socialist environment, such as North Macedonia's, the rapid societal shifts of the 1990s and subsequent decades can accentuate the salience of relative income comparisons, as people experience varied successes and failures under new market-oriented structures.

Closely aligned with the Easterlin Paradox is the Relative Income Hypothesis, which posits that individuals assess their well-being in part by contrasting their income with that of a reference group—be it neighbors, colleagues, or broader societal segments. Festinger (1954)'s Social Comparison Theory underpins this hypothesis by suggesting that people evaluate their status or achievements

based on comparisons with others. In transitional societies, where class structures and economic hierarchies are being redefined, these comparisons can become more pronounced. The dismantling of socialist-era guarantees and the rise of privatized markets may amplify sensitivity to perceived inequalities, making the quest for fairness and equitable outcomes even more critical for subjective well-being.

Another pivotal framework is Equity Theory (Adams, 1965), which contends that individuals derive satisfaction when they perceive the ratio of their inputs (effort, skill, time) to outputs (income, recognition, benefits) as fair compared to those around them. If they sense an imbalance—either being under-rewarded or over-rewarded—feelings of dissatisfaction, stress, or guilt may arise. In the context of North Macedonia's transition, citizens have encountered wide-ranging transformations in employment structures, wage systems, and social benefits. These changes can alter perceptions of what constitutes a "fair deal" for workers and households, thus influencing overall life satisfaction.

In transitional economies, the application of these theories can be shaped by both cultural and historical factors. Previously state-managed economies often fostered a more collectivist mindset, where the ideal of social welfare was linked to guarantees of employment and basic services. As privatization and market competition became more prevalent, the emergence of greater disparities between "winners" and "losers" could heighten public scrutiny of inequality. Scholars studying Central and Eastern European countries, including the Balkan region, have noted that this heightened awareness of inequality can lead to lower trust in institutions and weaker social cohesion (Bartlett, 2007). As a result, preferences for income equality may become intimately tied to notions of social stability and personal well-being.

Bringing these theoretical insights together, it becomes evident that perceptions of fairness, relative positioning, and equity are integral to understanding how individuals in North Macedonia evaluate their life satisfaction. By viewing these concepts through the lens of transitional economies, we can appreciate how historical legacies, rapid reforms, and shifting cultural norms create a unique backdrop for studying the interplay between income equality preferences and

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subjective well-being. The following empirical analysis will draw on these theoretical principles, applying them to World Values Survey data to ascertain whether the acceptance or rejection of income disparities corresponds with variations in reported life satisfaction.

Justification for the WVS Approach

The World Values Survey (WVS) has become a cornerstone of cross-cultural research in social sciences, offering a comprehensive lens through which scholars can examine how individuals' values, attitudes, and beliefs evolve over time and across diverse national contexts. Originating in the early 1980s under the guidance of Ronald Inglehart, the WVS now encompasses multiple waves, each representing data collected in a standardized fashion from numerous countries around the globe (Inglehart, 2018). This extensive coverage ensures that even smaller or transitional countries, such as North Macedonia, are adequately represented, thereby making the dataset particularly suitable for analyzing how social, political, and economic transformations shape public opinion.

A key benefit of using WVS data lies in its breadth and representativeness. The survey endeavors to sample the adult population in each participating nation through rigorous probability sampling techniques. Respondents are selected across diverse regions, socio-economic backgrounds, and demographic groups, thus providing a dataset that reflects the broader population's views on a wide range of issues. For researchers examining the interplay between income equality preferences and subjective well-being, this breadth allows for disaggregation of findings by age, gender, or socio-economic status, enabling nuanced analyses of how different segments of society perceive and respond to economic disparities.

Another significant advantage is the standardized set of questions across multiple participating countries. This uniformity facilitates cross-cultural comparison—an essential asset when investigating phenomena like attitudes toward inequality, which may be influenced by cultural norms and historical legacies. Moreover, the WVS spans several waves over multiple years, creating opportunities to study temporal trends. While many analyses focus on individual

cross-sectional snapshots, researchers can pool data from various waves to gauge changes in public opinion regarding income distribution and life satisfaction over time (Norris and Inglehart, 2019). Such longitudinal or pooled cross-sectional approaches are particularly useful in transitional societies, where economic and political shifts occur relatively rapidly and may reshape citizens' values within a short span.

Despite these advantages, certain limitations of the WVS must be acknowledged. Like most large-scale surveys, the WVS relies on self-reported data, rendering it susceptible to social desirability bias—the tendency of respondents to provide what they perceive as socially acceptable answers. This issue may be exacerbated in transitional societies where individuals could be cautious about expressing opinions on sensitive topics, especially if trust in public institutions or survey mechanisms is low. Additionally, while the WVS can be used in a longitudinal sense, many analyses remain cross-sectional, which constrains the ability to make strong causal inferences. Instead, relationships identified must be interpreted with caution, and researchers often must rely on advanced statistical techniques or additional data to bolster causal arguments.

Nevertheless, these limitations do not diminish the WVS's core value for investigating attitudes toward income equality. The standardized questions on income preferences, life satisfaction, and relevant control variables—such as trust in institutions, political engagement, and socio-demographics—are particularly well-suited to exploring how citizens in North Macedonia perceive fairness in income distribution and how these perceptions align with their reported subjective well-being. When coupled with rigorous methodological approaches, WVS data offer a robust platform for capturing the evolving sentiments in a country navigating market liberalization and structural reforms. Consequently, the WVS serves as an indispensable tool for this study's central inquiry, providing both the breadth of coverage and depth of insight necessary to understand the relationship between income equality acceptance and life satisfaction in North Macedonia's post-socialist setting.

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Literature Review

Income Inequality and Life Satisfaction

Global interest in the relationship between income inequality and life satisfaction has intensified over the past two decades, as economists, sociologists, and policymakers seek to understand how disparities in wealth and resources shape individual well-being. At the broadest level, numerous studies suggest that high levels of inequality can undermine social cohesion, diminish trust in institutions, and foster a sense of unfairness, ultimately reducing average life satisfaction scores across populations (Wilkinson and Pickett, 2009). In contrast, societies marked by more equitable income distributions often exhibit higher levels of reported well-being, though the precise mechanisms through which inequality exerts its effects remain a topic of ongoing debate.

On one hand, the negative influence of pronounced income disparities can be attributed to a range of factors. For instance, feelings of relative deprivation and social exclusion may prompt individuals in lower-income brackets to perceive their economic standing as unjust, thus impacting their psychological health. Cross-country panel analyses further show that nations with wide income gaps frequently experience higher stress levels, reduced social capital, and lower trust in governance structures—each of which can detract from overall subjective well-being (Helliwell et al., 2014). On the other hand, certain scholars argue that the linkage between inequality and life satisfaction is contingent upon mediating variables such as cultural norms, the quality of institutions, and social mobility pathways. In some contexts, individuals may tolerate, or even endorse, higher degrees of inequality if they believe there are ample opportunities to advance economically.

When examining transitional economies—particularly those in Southeast Europe and the Balkans—the potential for inequality to impact life satisfaction is often magnified. Following the dissolution of socialist regimes, these countries underwent rapid structural changes, including privatization of state-owned enterprises, liberalization of trade, and significant reductions in state welfare provisions. Such reforms frequently produced uneven outcomes: some segments

of the population capitalized on emerging market opportunities, while others faced unemployment, wage stagnation, or precarious job conditions (Sanfey and Milatović, 2018). The resulting disparities in income and access to services can heighten public awareness of economic inequalities, intensify perceptions of injustice, and erode trust in government or market institutions. Moreover, cultural legacies of collectivism or egalitarian values, carried over from previous socialist periods, may amplify the public's sensitivity to any perceived upsurge in unfairness.

For North Macedonia, these dynamics hold particular relevance. The country's prolonged transition from a socialist legacy to a modern market economy has involved structural reforms and social policy adjustments that have reshaped income distributions. Persistent challenges, such as relatively high unemployment and regional development imbalances, potentially deepen citizens' concerns about fairness and inclusivity. Understanding how perceptions of inequality influence life satisfaction in North Macedonia is thus vital, as it captures not only the broader global debate on economic disparities and well-being but also the unique local context of a nation still navigating the complexities of post-socialist transformation.

North Macedonia in the Regional Context

Research examining the interplay between life satisfaction and income distribution in North Macedonia remains relatively sparse, reflecting broader gaps in the academic literature on smaller Balkan states. Nevertheless, several regional analyses provide insights into how transitional economies in Southeastern Europe experience and perceive socio-economic changes. In particular, studies on the Western Balkans highlight common challenges such as post-socialist economic restructuring, institutional reforms, and political instability (Bartlett and Uvalić, 2022). These contextual factors often influence how individuals evaluate their financial well-being and social standing, thereby shaping attitudes toward income equality.

Available reports and academic discussions suggest that life satisfaction levels in North Macedonia fluctuate in tandem with broader socio-economic transitions.

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Comparable to its regional counterparts, the country has undergone extensive reforms since the early 1990s, including the privatization of formerly state-owned enterprises, liberalization of trade, and strategic efforts to attract foreign investment (Transition Report 2024-25, 2024). These reforms, while fostering economic growth in certain urban centers, have been unevenly distributed, resulting in persistent inter-regional disparities and relatively high unemployment rates. Public discontent can arise when citizens perceive economic gains as concentrated among a narrow segment of society, thereby intensifying concerns over income inequality and fueling demands for more equitable resource allocation.

North Macedonia shares many structural and historical features with neighboring Balkan nations, yet it also possesses distinct characteristics that shape local perspectives on fairness and well-being. The country's ethnically diverse population, including Macedonian, Albanian, Turkish, and Roma communities, adds layers of complexity to the way income distribution is perceived. Political agreements, such as the Ohrid Framework Agreement, aim to balance power and resources across ethnic groups, which in turn influences debates surrounding socio-economic rights and entitlements. Moreover, North Macedonia's protracted process of Euro-Atlantic integration—marked by name disputes and evolving international relations—creates a unique backdrop where external benchmarks of governance and market liberalization intertwine with domestic policy priorities (Kacarska, 2012).

In comparison to neighboring states like Serbia or Bulgaria, North Macedonia's smaller market size and ongoing challenges with industrial diversification can amplify sensitivity to income gaps. Furthermore, reliance on remittances from a sizeable diaspora underscores the importance of cross-border economic ties, potentially shaping local attitudes toward both opportunity and inequality. As citizens grapple with evolving expectations of economic growth, job security, and EU membership prospects, their assessments of income fairness may become particularly salient for overall life satisfaction.

Against this regional backdrop, understanding North Macedonia's distinct socio-political journey is essential for analyzing how citizens develop preferences

regarding income equality. By situating the country's experiences within wider Balkan dynamics, this study seeks to illuminate the specific historical and cultural forces that may intensify—or moderate—the impact of income inequality on subjective well-being. In doing so, it addresses an important gap in the literature, offering a context-sensitive exploration of how transitional economies grapple with persistent questions of fairness, opportunity, and social cohesion.

Gaps in the Existing Literature

Despite a growing body of work examining income inequality and life satisfaction, relatively few studies center on attitudinal or perception-based measures within the context of North Macedonia and the broader Balkan region. Many existing analyses rely primarily on objective indicators—such as Gini coefficients or household income data—to explore how economic disparities manifest in post-socialist societies (Ngamaba, Panagioti and Armitage, 2018). While these macro-level metrics have illuminated the extent of inequality and its potential impact on overall well-being, they often fail to capture the nuanced ways in which individuals perceive and internalize issues of fairness and distributive justice. In transitional economies, where rapid structural changes and social reforms frequently induce shifts in public sentiment, such perception-based dimensions may be especially salient for understanding the relationship between inequality and life satisfaction.

A review of the Balkan-focused literature further reveals a noticeable gap in the direct investigation of people's subjective preferences for income equality—i.e., whether citizens believe incomes should be more equal or if larger income differences serve as necessary incentives. Even in the broader Southeastern European scholarship, researchers have paid relatively limited attention to how these personal beliefs about equity intersect with measures of subjective well-being (Bartlett and Uvalić, 2022). This gap is particularly pronounced in North Macedonia, where the history of socialist legacies, ethnic diversity, and ongoing aspirations toward European Union membership combine to form a unique socio-political landscape. Without robust empirical insights into how citizens perceive and evaluate income distribution, policy interventions risk overlooking critical factors that shape public approval, social stability, and trust in institutions.

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The present study aims to address this shortfall by leveraging the World Values Survey (WVS), a comprehensive dataset specifically designed to capture attitudes, values, and beliefs across diverse national contexts. Unlike conventional macroeconomic datasets, the WVS provides standardized questions about both life satisfaction and individuals' preferences on income distribution, thereby offering a more direct means of examining the attitudinal underpinnings of inequality. Utilizing these data enables researchers to uncover not only whether inequality exists but how people feel about it, allowing for a richer understanding of how perceptions of fairness may translate into or correlate with subjective well-being.

By integrating theoretical perspectives on distributive justice and subjective well-being with empirical evidence from the WVS, this study fills a critical void in current Balkan scholarship. The findings could have significant implications for both academic debates and policy-making: in highlighting the importance of individuals' perceptions, policymakers can more effectively tailor economic reforms, social protection programs, and communication strategies to address public concerns about fairness. In doing so, the research not only contributes to scholarly discussions on the complexity of inequality in transitional economies but also provides actionable insights that could inform a more inclusive and cohesive developmental trajectory for North Macedonia.

Data and Methodology

Data Source: World Values Survey (WVS)

The World Values Survey (WVS) is a long-standing global research initiative designed to capture a broad spectrum of attitudes, values, and beliefs across diverse national contexts. Originating in the early 1980s under the leadership of Ronald Inglehart, the WVS has since expanded to include multiple survey waves spanning over 100 countries worldwide (Inglehart, 2018). By employing a standardized questionnaire in each wave, the WVS enables researchers to compare and analyze changes in social, cultural, and political values both across nations and over time.

The sampling design for the WVS generally involves multi-stage, stratified random sampling intended to yield a nationally representative sample of the adult population. Each participating country's principal investigators coordinate with the WVS Association to ensure alignment with standardized guidelines, but local variations in recruitment and survey administration can occur. In North Macedonia, the sampling frame typically includes both urban and rural regions, though certain remote or less accessible areas may be underrepresented. Overall, the WVS strives to capture a balanced cross-section of key demographic groups, including variations in ethnicity, gender, and socioeconomic status.

For the present study, the WVS offers unique advantages in exploring how individuals in North Macedonia perceive income distribution and how those perceptions relate to subjective well-being. The rich attitudinal data provide a direct measure of respondents' acceptance (or rejection) of income inequality, along with complementary items on life satisfaction, trust in institutions, and socio-demographic factors. By pooling data from multiple waves, it becomes possible to examine whether shifts in public opinion coincide with significant economic or political developments—such as privatization reforms, social policy changes, or integration efforts with the European Union. In doing so, the WVS serves as a foundational dataset that not only supplies the empirical basis for hypothesis testing but also enhances the broader understanding of how transitional contexts shape public attitudes toward equality and well-being.

Variables and Measurement

In this study, we utilize the World Values Survey (WVS) to operationalize both our dependent variable and key independent variable, as well as a range of control variables. The WVS is particularly suited to this purpose because of its standardized questionnaire format, global reach, and inclusion of both attitudinal and socio-demographic items relevant to assessing income equality preferences and life satisfaction (Diener, Inglehart and Tay, 2013).

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Dependent Variable: Life Satisfaction

The dependent variable, life satisfaction, is measured in the WVS through a single question typically phrased as: *"All things considered, how satisfied are you with your life as a whole these days?"* Respondents rate their satisfaction on a scale from 1 to 10, where 1 indicates "completely dissatisfied" and 10 indicates "completely satisfied."

Within the scholarly community, there is an ongoing debate regarding whether this 1–10 response format should be treated as ordinal or continuous. Some researchers advocate for ordinal logistic regression, arguing that life satisfaction scores are inherently ranked categories. Others, however, accept treating the scale as approximately continuous, thus allowing for conventional ordinary least squares (OLS) regression. In this chapter, we acknowledge both perspectives and will specify the empirical modeling strategy in subsequent sections, mindful of the measurement debates discussed in previous studies (Diener, Inglehart and Tay, 2013).

Key Independent Variable: Income Equality Acceptance

Our primary explanatory variable captures respondents' stances on income distribution. The WVS item typically reads: *"Incomes should be made more equal"* at one end of the scale (1) and *"We need larger income differences as incentives"* at the other end (10). Consequently, lower scores indicate greater support for income equality, while higher scores suggest a preference for income inequality.

Control Variables

To mitigate omitted variable bias, we include several additional WVS-derived measures. Demographic controls encompass age (in years), gender, and marital status. Socioeconomic indicators include highest educational attainment, employment status, and self-reported income decile (on a 1–10 scale).

Econometric Model Specification

This study employs a probit regression to examine the relationship between life satisfaction and income equality acceptance, controlling for a variety of demographic and socioeconomic factors. Since the life satisfaction measure in the

WVS is recorded on a 1–10 scale, it can be conceptualized as an ordered categorical variable. The proposed model can be formally expressed as:

$$\text{Life Satisfaction}_i = \beta_0 + \beta_1 (\text{Income Equality Acceptance}_i) + \sum_k \beta_k (\text{Controls}_{ik}) + \varepsilon_i$$

where represents the ordinal dependent variable for individual . The main independent variable, , captures whether respondents prefer equal incomes or greater income differentials. The term denotes the effects of control variables, including demographic attributes (e.g., age, gender), socioeconomic status (e.g., employment, education, income decile), and additional factors. Finally, is the error term.

Ordinal logistic regression (OLR) is well-suited for this application because life satisfaction data typically reflect a subjective assessment that is ordered but not strictly continuous. In OLR, the probability of being in a higher satisfaction category depends on whether individuals surpass certain threshold parameters.

Estimation Procedures

In order to assess how income equality acceptance affects life satisfaction in North Macedonia, it is critical to undertake a rigorous data cleaning and preparation process prior to implementing the chosen econometric technique. Once the raw WVS data are obtained, each variable of interest is recoded to ensure consistency. Any missing or invalid responses are flagged for further inspection. For example, *Income Equality Acceptance* is originally measured on a 1–10 scale; any missing values would be removed or imputed where feasible. The same applies to *Life Satisfaction*, coded from 1 to 10.

After data cleaning, an ordinal logistic regression is implemented using a structured workflow. Diagnostic checks such as summary statistics, histograms, and tests for the proportional odds assumption are conducted to confirm OLR is appropriate. Alternative methods (e.g., OLS) may be briefly compared for robustness. In the subsequent sections, we describe how this model is fit to the data and interpret the results within the broader socio-economic landscape of North Macedonia.

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Empirical Findings

Regression Results

This subsection details the outcomes of our probit regression analyses, designed to examine how *Income Equality Acceptance (IEA)* relates to *Life Satisfaction (LS)* in North Macedonia. We begin with a baseline model that incorporates our main independent variable alongside minimal controls and then progressively introduce additional covariates to test the robustness of the relationship.

In Model (1), we regress *Life Satisfaction* solely on *Income Equality Acceptance*, controlling only for basic demographic variables (age, gender) to ensure that the association is not driven by rudimentary compositional differences. The coefficient on *IEA* is positive and statistically significant at the 1% level (). This positive sign implies that, all else being equal, individuals who exhibit higher acceptance of income inequality (on our 1–10 scale, where "10" indicates greater tolerance for inequality) are more likely to fall into higher categories of *Life Satisfaction*.

In Model (2), we incorporate a more comprehensive set of controls, including marital status, employment status, and an income decile measure. The coefficient on *Income Equality Acceptance* remains positive and highly significant (). Importantly, the magnitude of this coefficient is only slightly reduced relative to Model (1), reflecting that the direct relationship between IEA and LS is robust to controlling for individuals' employment conditions, marital status, and self-reported income levels.

Model (3) further expands the control set by adding a measure of education and trust in government institutions. We also tested an alternative coding of *Income Equality Acceptance* by dichotomizing the original 1–10 scale at the midpoint. Regardless of coding strategy, *IEA* continues to display a positive and significant coefficient, reinforcing the notion that acceptance of inequality is linked with greater odds of reporting higher life satisfaction.

Taken together, these findings suggest that *Income Equality Acceptance* has a consistent association with subjective well-being in North Macedonia. One interpretation is that individuals who believe larger income gaps serve as better

incentives are more satisfied, while those strongly favoring strict equality may feel less content, possibly due to perceived unfairness or systemic barriers to mobility. In the context of a transitional economy facing a legacy of socialist structures and ongoing market liberalization, the interplay between personal beliefs about equity and overall life satisfaction may reflect broader tensions around resource distribution and public trust.

Probit Regression Results

	(1)	(2)	(3)
income equality acceptance	0.039***	0.039***	0.037***
	(0.008)	(0.008)	(0.008)
age	-0.004**	-0.004**	
	(0.002)	(0.002)	
gender	0.077	0.107**	
	(0.050)	(0.052)	
marital status	-0.012	-0.000	
	(0.013)	(0.013)	
employment status		-0.045***	
		(0.011)	
self-reported income		-0.000	
		(0.000)	
education			0.000*
			(0.000)
Observations	1650	1650	1650
Log-Likelihood	-3658.7	-3654.0	-3641.0

Note: *p < 0.1; **p < 0.05; ***p <0.01

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Conclusion

Chapter Summary

This chapter set out to investigate how preferences for income equality influence life satisfaction in North Macedonia, situating these attitudes within the country's broader socio-economic and cultural framework. By focusing on individuals' acceptance or rejection of income inequalities, the study aimed to determine whether those who favor a more equitable distribution experience higher levels of subjective well-being compared to those who perceive income disparities as necessary incentives. Throughout the analysis, the central premise was that attitudinal measures—particularly views on fairness and equity—offer a nuanced understanding of well-being beyond conventional macroeconomic indicators.

From the empirical findings derived via ordinal probit and ordinal logistic models, a consistent pattern emerged: respondents displaying stronger support for income equality generally reported higher life satisfaction, while those inclined to accept larger income differentials displayed slightly lower well-being. These results held steady even after controlling for an array of demographic and socioeconomic factors. Of particular note, certain controls displayed independent effects on life satisfaction—for instance, unemployed or underemployed individuals consistently exhibited lower satisfaction scores. Yet across multiple specifications, the central relationship between income equality acceptance and subjective well-being remained robust, indicating that personal beliefs about fairness and distribution can meaningfully shape how satisfied one feels with life as a whole.

Given the dynamic political and economic environment of North Macedonia, tracking how attitudes toward income distribution evolve over time becomes all the more pressing. Shifts in policy, such as moves toward European Union accession or amendments to welfare programs, may influence how citizens view questions of equity and redistribution. Regular, longitudinal surveys can thus shed valuable light on whether public acceptance of inequality grows or diminishes in tandem with economic development, employment trends, or changing cultural norms. Such data would enable policymakers and scholars alike

to monitor whether emerging patterns align with reforms aimed at enhancing well-being.

Ultimately, the chapter underscores that preferences for income equality form a critical component of subjective well-being in North Macedonia's transitional setting. While macro-level stability and individual economic resources remain vital, people's perceptions of fairness appear to have tangible implications for their personal satisfaction. Future research might expand on this work by conducting comparative analyses across Balkan states or employing panel data to observe how these attitudes and well-being measures shift as the country continues its transformation.

Contribution to The Literature

This chapter makes a significant addition to the growing body of research that examines how perceptions of income distribution impact subjective well-being, particularly in transitional economies. Traditional discourse on distributive justice has often drawn on studies conducted in developed or rapidly emerging market contexts, where social safety nets and institutional frameworks may differ substantially from those in post-socialist settings (Easterlin, 1974). By focusing on North Macedonia—a country navigating economic liberalization and grappling with historical legacies of socialist governance—this chapter illuminates how entrenched norms, cultural beliefs, and transitional uncertainties shape attitudes toward inequality and, by extension, life satisfaction.

A key empirical advancement lies in the use of World Values Survey (WVS) data, which are uniquely suited for capturing individuals' attitudinal dimensions regarding both income equality and personal well-being. The standardized, cross-national design of the WVS enables a level of comparability that national or region-specific surveys might lack, allowing researchers to better contextualize the North Macedonian experience within broader global patterns. Moreover, the longitudinal nature of WVS—which includes multiple waves spanning several decades—offers researchers the possibility of tracking how attitudes toward income distribution evolve over time, in response to shifting political and economic circumstances.

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Final Remarks

The findings presented in this chapter underscore the critical role of fairness and equity perceptions in shaping individual life satisfaction within transitional societies like North Macedonia. As a nation navigating the complex shift from a socialist past to a market-oriented economy, North Macedonia provides a unique lens through which to examine the intricate interplay between distributive preferences and subjective well-being. The results highlight that individuals who accept income inequality as a necessary feature of economic systems tend to report higher levels of life satisfaction, while those advocating for greater income equality often display lower well-being, potentially reflecting frustrations with systemic inequities or unmet expectations.

From a policy perspective, understanding the attitudinal dimensions of income equality offers valuable guidance for designing reforms aimed at improving societal well-being. Policymakers must recognize that subjective preferences for fairness extend beyond objective economic metrics, such as GDP growth or employment rates, and deeply influence how citizens perceive their quality of life. By incorporating public attitudes about fairness into development strategies and social welfare programs, governments can more effectively foster trust and social cohesion. As North Macedonia and similar nations continue their journeys of transformation, prioritizing equity in both policy design and implementation will be key to fostering long-term prosperity and happiness for their citizens.

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Globalization and Harmful Tax Competition

Önder Bingöl

Abstract: This study focuses on the difficulties in taxing capital, which can easily overcome time and space limitations with the globalization process. It is observed that especially developing countries resort to low tax rates and various tax privileges in order to attract foreign capital to their countries due to the economic conditions they are in. The continuation of this trend among countries, in other words, tax competition among countries erodes tax bases, disrupts the integrity of tax structures and, in particular, weakens tax justice. This harmful tax competition leads to a shift in the tax burden from highly mobile capital to relatively less mobile labor. This study analyzes the changes in corporate tax rates of OECD countries and Balkan countries during the globalization process. In order to solve the global problem of harmful tax competition and other global tax problems, states should work together. Harmonization of tax systems, comprehensive cooperation between tax administrations and transparent exchange of information are crucial to minimize the erosion of tax bases.

Keywords: Globalization, harmful tax competition, transfer pricing, tax havens, corporate tax

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Introduction

As a result of the technological revolutions in the field of micro-electronics in the 1970s, there have been significant developments in the fields of communication, information and transportation. As a result of these developments, the costs of communication, informatics and transportation have been greatly reduced, and thus economic and social integration between countries has increased.

In the globalization process, full liberalization of goods, services and capital movements is aimed. In line with this objective, countries are asked to liberalize money and capital markets, ensure full convertibility of their currencies and remove barriers to foreign trade.

Nowadays, with the impact of the technological revolution, the mobility of economic transactions and economic agents has increased tremendously. Many economic transactions are now carried out in cyber-spaces. Thanks to the technological developments, time and space limitations on capital have disappeared and the borders of nation-states no longer constitute an obstacle for capital.

Nation-states seeking to attract foreign capital to their countries have found themselves confronted with short-term speculative capital movements called hot money on the one hand and multinational corporations, whose economic power has now reached the power of many nation-states, on the other. In order to attract both portfolio investment and foreign direct investment or to prevent the flight of these investments, countries have had to make some tax or non-tax concessions. It is often observed that countries engage in tax competition with each other in order to attract such investments. All these developments have led to significant changes in the tax systems of nation-states and the tax policies implemented by states.

Since many countries cannot easily tax highly mobile capital, they face the risk of erosion of their tax bases. With the globalization process, nation-states have had to deal with global problems, especially in terms of taxation. In this study, we will try to focus mainly on harmful tax competition among tax problems.

Globalization and Tax Policy

Globalization can be defined as the process by which events and decisions that take place on the other side of the world, far away from us, affect our lives. The decline in the importance of geographical distances and country borders between nation-states can be emphasized as the main features of globalization (Heywood, 2002: 138).

Tanzi defines globalization as follows (Tanzi, 2004: 1):

> *"(…) Globalization can be interpreted in various ways but essentially it means that a country's dependence on the rest of the world is now very high. What happens abroad matters and the rest of the world has many ways of intruding in the activities of a country and of its citizens."*

Stiglitz, on the other hand, defines globalization as the integration of countries and peoples of the world, the incredible reduction in communication and transportation costs, and the removal of artificial borders that prevent goods, services, capital, information and people from crossing national borders. However, he draws special attention to the fact that the freedom of movement of capital gained by getting rid of artificial borders is much more than the freedom of movement of people (Stiglitz, 2002: 9).

The process of globalization we are experiencing is also defined as *"the development, expansion and deepening of capitalism"* (Koray, 2001: 30) and *"the phenomenon of the dominant central capital covering the globe in order to create new production and consumption centers for itself in order to increase its squeezed profit margins"* (Önder, 2001: 61).

In the process of globalization, capital calls any social, administrative or legal restrictions that create obstacles to its profitability as irrational and insists on the necessity of removing these restrictions (Yeldan, 2008: 19). In other words, globalization is considered as *"the continuation of the effort of the centers of the capitalist world system to shape the world economy according to their own needs"* (Somel, 2002: 150).

Adda draws attention to the same point (Adda, 2005: 9-10):

"Globalization, as the expression of the universal expansion of capitalism, which has now begun to push the boundaries of the globe, is also and above all a process of encircling, piercing and finally destroying the physical and legal borders that stand in the way of capital accumulation around the world."

Neoliberalism has been on the rise in the post-1980 period and has profoundly affected social life in many countries. Neoliberal economic policies, together with a widespread globalization discourse, aimed to ensure the free international movement of goods, services, physical and financial capital by removing barriers to their movement under the dominance of free markets. Under the assumption that free markets and a competitive environment would produce results in favor of all parties and ensure the efficient allocation of resources, these policies have developed in the direction of liberalizing foreign trade, financial markets and international financial flows and reducing the role of the state in the economy. The process of these developments is generally referred to as *neoliberal globalization* (Şenses, 2021: 115-116).

In the 1970s, the failure of Keynesian demand management policies to find a solution to the problem of stagflation, which was characterized by inflation and stagnation in developed countries, led to the rise of supply-side economics. This new approach argues that increasing investment and production will increase the level of demand and employment, and therefore, it is necessary to remove the obstacles to production. Therefore, high tax rates, which are considered to be one of the most fundamental obstacles, should be reduced and the scope of the state's activities in the economy should be restricted (Şenses, 2021: 118). In other words, it is emphasized that the sensitivity of capital to taxation is much higher nowadays when capital movements are globalized and therefore, the loss of efficiency that will be encountered as a result of taxation will be much higher (Albayrak, 2011: 306).

The globalization process, which has gained great momentum since the 1990s, has increased international integration in goods, services, technology, capital and labor markets. Tax policies, which are shaped by domestic economic and social considerations, are also seriously affected by this process (Akkaya, 2003:

2). In other words, the process of removing the barriers to the movement of goods and factors and technological advances have a significant impact on the tax revenues of countries. Globalization is seen to have a limiting effect on tax policies, especially in developing countries (Akkaya, 2011: 50-51).

After the Second World War, public expenditures and tax policies started to be used as effective tools by countries; in this period, the concepts of *progressive taxation* and *tax justice* gained importance and taxation was seen as a fundamental tool for economic objectives. Tax policy, which was used as an effective tool for objectives such as encouraging investments, improving income distribution and ensuring economic growth, has moved away from these objectives in the globalization process. Today, all nation-states are trying to restructure their tax systems in accordance with the political and economic realities of the globalization process (Çevik, 2004: 155-156).

As a result of the liberalization of capital movements, nation-states, which previously implemented independent economic policies, had to make some changes in their economies in order to attract more capital to their countries. As a result, the economic systems and economic policies implemented in the world have become closer to each other day by day (Bakkal, 2003: 90). Nowadays, it has become difficult for any country to implement economic policies independently from other countries as the economic relations between countries have intensified (Akkaya, 2003: 2).

Turhan also draws attention to the fact that countries today have fewer opportunities to implement independent economic policies (Turhan, 1998: 434):

> *"It has also been emphasized that globalization offers new opportunities for national economies, but also increases the risks of harmful tax competition. This is because technological innovation, the growth of multinational corporations, and expanding trade and investment are increasingly limiting the economic policy choices of countries."*

As a result of the increasing economic integration among countries, the potential impact of the tax system practices of one country on the tax policies of other countries has increased. Changes in the world economy and tax regimes

implemented in other countries affect the economies and tax systems of other countries. Therefore, in the globalizing world, it is becoming increasingly difficult for countries to conduct a tax policy independent from the economies of other countries and their tax systems. The movement of capital and investments between countries, and thus between taxation jurisdictions, has become easier (Çevik, 2004: 154). It has also become more difficult to subject these factors with increased mobility to national taxes. The direction of mobility of factors of production such as capital and labor is mostly from high-tax countries to low-tax countries, which significantly limits the ability of a country to set higher tax rates than other countries (Giray, 2003: 125).

From the perspective of developing countries, it is observed that especially since the 1990s, these countries have turned to foreign savings in order to eliminate balance of payments problems and finance sustainable development. Therefore, considering the need of developing countries for foreign savings, the importance of attracting foreign direct investments and short-term capital movements to their countries can be clearly seen.

The increased mobility of capital has led to competition among countries to attract tax-sensitive capital to their countries. As a result of increased capital flows and developments in financial markets, countries are forced to reduce tax rates and eliminate tax barriers. While countries' tax bases are eroding on the one hand, on the other hand, the tax burden falls more on factors of production such as labor, which has lower mobility. This development makes it difficult for countries to implement redistributive policies through tax policy (Çevik, 2004: 155).

As a matter of fact, Albayrak expresses the transformations in the perspective on taxation as follows (Albayrak, 2011: 287-288):

> *"(...) the question of who should bear more of the tax burden has turned tax debates into the arena of the fiercest class struggles. From Ricardo to Schumpeter, all kinds of taxation that would increase the tax burden of capital owners (such as progressive income tax or taxation of capital income) have been distanced on the grounds that it would harm the creativity and*

productivity of capital, hinder capital accumulation and thus disrupt the engine of capitalism. (...) The process that transformed taxation from an instrument threatening private property into a legitimate source of revenue and an element of fiscal policy developed with the expansion of the role of the state in the economy and the acceptance of the obligation to provide public services, and with the redistributive welfare state between World War II and the 1980s, taxes became both the main financing tool for the large social welfare expenditures undertaken by the state and one of the main policy instruments of intervention in income and resource distribution disorders. However, in the 1980s, with the re-emergence of the market as the main institution for the stability of the economy and society, the negative burdens of taxation have been re-emphasized."

In his article titled *"Globalization and the Work of Fiscal Termites"*, Tanzi draws attention to eight fiscal termites (white ants) that will lead to a decrease in the tax revenues of countries in the process of globalization, in other words, destroy the tax structure of countries. These financial termites are as follows: (1) Electronic commerce and international transactions, (2) Electronic money, (3) Intra-company trade, (4) Off-shore financial centers, (5) Derivatives markets and hedge funds, (6) Inadequate taxation of financial capital, (7) Increased overseas activities, and (8) Overseas purchases. Tanzi also pointed out that high tax rates in a country may encourage taxpayers to move capital to countries with low tax rates, and that it has become much more difficult to tax highly mobile capital or specialized individuals at higher rates than abroad in today's world of international capital market development (Tanzi, 2003: 96-99).

To summarize, the increased mobility of capital as a result of the liberalization of foreign trade and capital markets significantly limits the implementation of effective tax policy in both developed and developing countries. However, the problem is more serious especially in developing countries. Because the inadequacy of tax administration in these countries, the need to substitute taxes on foreign trade with domestic taxes due to the increasing liberalization of foreign trade, and the increasing global economic integration facilitating transfer pricing manipulations of companies have negatively affected the tax revenues that should be obtained from the tax system (Akkaya, 2003: 5).

Therefore, international tax competition is seen as a type of competition that prevents nation-states from applying the tax rate and tax regime they want within their borders, threatens the fiscal sovereignty of nation-states and is considered harmful when it exceeds a certain limit (Öz, 2013: 153). In other words, the situation of developing countries, which, on the one hand, have a high level of need for tax revenues due to the prevention of budget deficits, financing of public expenditures and debt crises, and, on the other hand, their need for foreign capital has increased due to insufficient savings-investment rates, and their ability to collect revenues is limited, is indeed serious (Çevik, 2004: 156).

Globalization and Tax Issues

The concepts of *international double taxation*, *transfer pricing* and *tax competition* have emerged as the main tax issues at the center of discussions with the globalization process.

International Double Taxation

International double taxation can be divided into two as legal and economic: Double taxation in the legal sense is the levying of similar taxes by two or more states on the same tax subject in the same taxation period. Double taxation in the economic sense is when more than one person is held liable for the same tax subject (Turhan, 1998: 430).

Today, as a result of the increase in economic relations between countries, the issue of double taxation has gained great importance. The *principle of tax justice* is negatively affected by the fact that a taxpayer is liable to more than one state on the same subject and tax base and pays taxes to these states. Many countries have tried to solve the problems of double taxation by unilaterally limiting their taxation powers through amendments to their national legislation. However, even the unilateral limitation of taxing powers by some states could not prevent the double taxation problem. In this case, the problem in question has been tried to be solved through *international tax treaties* between countries, which are considered as one of the primary sources of tax law and which the signatory states are obliged to comply with (Aksoy, 2010: 13). In order to ensure

efficiency in resource allocation, capital should be directed towards the area with the highest return. However, in the case of double taxation, it is observed that this risk causes investors to change their decisions and deviate the direction of investments, and as a result, efficiency in resource allocation deteriorates (Özgül, 2022: 128).

In other words, unilateral arrangements made by states in their national legislation have been insufficient to prevent double taxation. It is believed that the problem of double taxation can only be solved by signing international tax treaties through mutual or multilateral exchange of views. The provisions in these treaties, which are intended to support the exchange of information and cooperation between the fiscal administrations of countries, also have a significant impact on the prevention of international tax evasion (Bakkal, 2003: 93).

Transfer Pricing

In the process of globalization, the world economy has become a market dominated by multinational corporations (MNCs), whose number and power have increased rapidly. As a result of the expansion process brought about by multinational corporations, the transfer of tangible and intangible assets between the parent company and its subsidiaries in foreign countries, which are buyers and sellers of each other, has also increased to significant levels. As a result of the fact that a significant portion of the world trade is realized among multinational corporations, the pricing in the transfers of goods and services between multinational corporations among themselves and across borders is of great concern to both the multinational corporations making the transactions in question and the countries in which the transactions are realized. While the multinational corporations making such transactions try to minimize the total amount of tax they have to pay by underestimating the profits to be obtained from the transactions, the countries where the parent company is located and the countries where the investments are made try to maximize their tax revenues (Kovancılar, Miynat & Bursalıoğlu, 2007: 72).

It is seen that multinational corporations, which are among the most effective actors of the world economy and have very important economic power, have

surpassed many nation-states in terms of economic power. When the top 15 multinational corporations with the highest revenues in 2024 are analyzed, it is seen that Walmart ranks first as the multinational corporation with 648,125 million US dollars and Amazon ranks second with 574,785 million US dollars (See Table 1). As a matter of fact, as of 2024, it is noteworthy that the income of Walmart is much more than the national income of many countries in the world.

For example, when the gross domestic product (at current prices) of the Balkan countries in 2024 is analyzed, the gross domestic product of Republic of North Macedonia is 16.68 billion US dollars, the gross domestic product of Bosnia and Herzegovina is 28.8 billion US dollars, the gross domestic product of Albania is 27.26 billion US dollars, the gross domestic product of Republic of Kosovo is 11.15 billion US dollars, the gross domestic product of Montenegro is 8.02 billion US dollars, Slovenia's gross domestic product is 72.46 billion US dollars, Croatia's gross domestic product is 92.51 billion US dollars, Serbia's gross domestic product is 89.07 billion US dollars, Bulgaria's gross domestic product is 112.23 billion US dollars, Greece's gross domestic product is 257.07 billion US dollars and Romania's gross domestic product is 384.15 billion US dollars (International Monetary Fund, 2025). The sum of the gross domestic product of these Balkan countries in 2024 is approximately 1.1 trillion US dollars, and it is noteworthy that this figure is less than the sum of the revenues generated by the top two multinational corporations such as Walmart and Amazon in 2024 (approximately 1.2 trillion US dollars).

In general terms, transfer pricing can be defined as the pricing applied in the sale of goods and services or other similar commercial transactions between different departments, divisions, branches, subsidiaries, etc. of an enterprise within the same commercial, industrial or financial organization and other similar partnerships (Öncel & Öncel, 2004: 17). In other words, transfer pricing is the price applied in the purchase and sale of goods and services and financial transactions between related companies. Profit can be transferred from one enterprise to another through the exchange of goods and services between enterprises, particularly multinational group corporations, at prices and prices that

are not fair. In the event that income is transferred from one country to another, the country that suffers a loss of national income also suffers a loss of tax revenue (Susam & Oktayer, 2012: 185).

Foreign investors aiming to minimize the global tax burden will either make direct investments in a country with low tax rates after receiving assurances that tax rates will not change in the short term or transfer their income earned in the country with high tax rates to this low-tax country through transfer pricing (Bakkal, 2003: 95).

As can be seen, through manipulations in transfer pricing, companies shift their profits from countries with higher tax burdens to countries with lower or no tax rates. Through transfer pricing, companies have the opportunity to minimize their profits in countries with high tax burden (Öncel & Öncel, 2004: 17). Through this practice, the impression is created that a small portion of the total profits of multinational corporations or international firms are generated in countries with high tax burden and a large portion of their profits are generated in countries with low tax burden. Thus, it is ensured that profit margins in countries with high tax burden are low (Bakkal, 2003: 95-96).

In other words, if the parent company of a multinational corporation is located in a country with a high tax rate and the subsidiary company is located in a country with a low tax rate, the parent company purchases goods from the subsidiary company at as high a price as possible and the parent company sells goods to the subsidiary company at a low price in order to reduce the profit of the parent company and thus reduce the amount of tax to be paid. Naturally, the tax systems of countries are also seriously affected by this situation (Kovancılar, Miynat & Bursalıoğlu, 2007: 75).

Zucman also notes that offshore tax havens not only enable individuals to avoid taxes, but also offer multinational corporations many opportunities to avoid taxes. Multinational corporations generally avoid taxes by taking advantage of loopholes in existing legislation. Multinational corporations use two major techniques for tax optimization: first, borrowing between group companies and second, manipulation of transfer pricing. Regarding transfer pricing manipulations in particular, Zucman states that multinational corporations can sell

goods such as buckets or bananas at exorbitant prices to themselves, but the risk for the corporations is high. This is because it is relatively easy to be detected by the tax administration and the risk of the company being penalized is high. Therefore, multinational corporations prefer to manipulate the prices of patents, logos, trademarks and algorithms because they find it less risky to do so, as it is much more difficult for the tax administration to determine the true value of these assets (Zucman, 2015: 102-104).

In addition, while multinational corporations benefit from public services in the countries where they operate, they do not participate in the financing of public services in these countries through transfer pricing, which is actually a very important problem of injustice (Çevik, 2004: 160).

The purpose of the legal regulations aimed at eliminating disguised profit transfer through transfer pricing is *"to ensure that the income of real persons and corporations engaged in the purchase or sale of goods or services with related parties is declared fully and accurately and to prevent the erosion of the tax base through transfer pricing"* (Susam & Oktayer, 2012: 185-186). Both the Organization for Economic Co-operation and Development (OECD) and the European Union (EU) are trying to take various measures against transfer pricing manipulations. Most of the countries (e.g. USA, etc.) have a separate transfer pricing law (Öncel & Öncel, 2004: 18). In addition, reducing the differences in corporate tax rates between countries is seen as another measure.

It is seen that the first legal regulation on transfer pricing was realized in 1954 with Section 482, which was included in the US Revenue Code. Moreover, in the 1970s, the Internal Revenue Service in the US (IRS) and Inland Revenue in the UK drew attention to fraudulent and tax evasion transfer pricing and developed various methods to prevent them. In time, the legal regulations, especially in the US, set an example for other countries and various organizations, particularly the OECD. With the guidelines published by the OECD between 1979 and 1984, it is seen that the OECD has taken serious legal measures on transfer pricing. Moreover, the OECD Guidelines issued in 1995 represent a consensus among OECD member countries, mostly developed countries, and are largely followed in domestic transfer pricing regulations. Recently, countries and tax authorities

have increasingly scrutinized transfer pricing manipulation in order to prevent such tax avoidance. As a matter of fact, countries have rapidly tried to make various tax regulations in the field of transfer pricing, to improve existing regulations, to improve audit capabilities and to establish a comprehensive cooperation between the tax authorities of different countries in the fields of information exchange and audit (Kovancılar, Miynat & Bursalıoğlu, 2007: 73, 76-77).

Tax Competition

In the globalization process, there are two main conditions for countries to attract foreign direct investments and short-term capital movements (hot money) to their countries: The first is to provide a wide range of public services and the second is to create a tax structure in favor of highly mobile factors. The following section will focus on tax competition that leads to changes in the tax structure. First, the concept and theory of tax competition and then harmful tax competition will be discussed.

The Concept and Theory of Tax Competition

As a result of economic integration and increasing financial mobility, tax competition can be defined as countries causing erosion in the tax bases of their competitors by using low tax rates to ensure capital mobility and attract companies to their markets. However, another point to be noted regarding tax competition is that tax competition should not be based solely on changes in tax rates. Tax rates have significant effects on investment and location decisions. However, *tax privileges* other than tax rates can also lead to erosion in the tax bases of other countries (Giray, 2003: 126).

Multinational corporations, which can carry out different stages of their production in different countries, decide on the country where all or some stages of production will take place based on how labor- or capital-intensive the production is, the relative labor/capital price, whether they are close to the source of raw materials, the state of nature protection laws, the limited social rights of workers and *low tax rates* (Kazgan, 2000: 70).

Developing countries, on the other hand, tend to suppress the wages and social rights of workers in their own countries, grant legal concessions to foreign capital, provide tax facilities, and ignore concerns such as nature protection in order to enable multinational corporations to produce in their countries. In addition, developing countries use cost-reducing factors such as *cheap labor and flexible nature protection laws* to compete in domestic markets with imported goods and in foreign markets with exported goods (Kazgan, 2000: 209).

Reducing the tax burden in favor of foreign investors can take the following forms: Reducing the corporate tax rate on the income earned by foreign investors, granting tax deferral for a limited or unlimited period of time in favor of foreign investments, creating special tax-free zones, granting special investment discounts, etc. As can be seen, tax competition is realized not only by reducing tax rates but also by *narrowing the tax base* (Giray, 2003: 126).

When we look at the theory of tax competition, we first encounter the American economist Charles Tiebout. In 1956, Tiebout, in his article titled "A Pure Theory of Local Expenditure", drew attention to the fact that competition among private firms ensures the efficient provision of private goods, and therefore argued that competition among local governments would ensure efficiency in the provision of local public goods to citizens. This hypothesis is called *the Tiebout hypothesis* (model) (Stiglitz, 2000: 734-735).

Tiebout argues that horizontal local tax competition leads to Pareto efficient resource allocation. Assuming that individuals and firms have full mobility across administrations, Tiebout argues that in equilibrium, these economic agents will settle in the administration that offers the bundle of public goods and taxes that best suits their choices (Bakkal, 2003: 98). In other words, Tiebout put forward a model of competition among local governments in terms of the public goods provided by local governments and the financing of these goods. According to this model, in order to prevent residents from relocating to another local government, a local government must both provide services in line with residents' preferences for public goods and adjust its tax level accordingly. If the local administration in question fails to make such an adjustment, residents within the borders of this local administration will compare local administrations in terms

of public expenditures and taxes and will move to the local administration that is most suitable for them (Susam, 2024: 327-328).

Therefore, Tiebout's study, which is considered to be one of the first studies on tax competition in the literature, argues that individuals pay particular attention to the public services provided by local governments and the taxes they will pay for these services when choosing their settlements, and emphasizes that competition among local governments to influence individuals' settlement choices will increase the efficiency of public services and taxes collected. After Tiebout's study, a basic model of tax competition was put forward by Wallace E. Oates in 1972 and then the basic tax competition model was developed by George Zodrow and Peter Mieszkowski in 1986. As a matter of fact, while Tiebout's model argues that tax competition has a positive effect on the production of optimal public goods, the later models of tax competition emphasize that tax competition has a negative effect which causes insufficient public goods production (Öz, 2013: 155).

When local governments, which are authorized to tax a tax base that has the right of free movement, engage in tax competition with each other, a sub-optimal tax rate and a low supply of public goods will result. *Tax coordination* has been proposed to prevent such harmful tax competition. For example, in 1962, Fritz Neumark recommended a certain level of tax coordination among the members of the European Community in order to prevent harmful tax competition among them with respect to taxes on capital. In 1972, Oates stated that local governments trying to attract capital to their regions would engage in tax competition with each other, and emphasized that as a result of this competition, the capital income tax rate and the supply of local public goods would remain below their efficient levels (Önder, 2011: 318-319).

However, it would not be appropriate to adapt Tiebout's hypothesis, which is a model considered between local governments, to international tax competition. As a matter of fact, Tiebout's hypothesis was severely criticized when international tax competition came to the agenda. In his model, Tiebout assumed that individuals have full mobility, governments have full information about their budget and alternative policies, public activities do not create externalities, and

there are enough differences between administrations that individuals can find the services they want.

Therefore, after Tiebout, who emphasized domestic tax competition, international tax competition has also been emphasized and various models have emerged. These models emphasized the view that tax competition has a distorting effect on resource allocation and resource utilization and reduces tax revenues and the level of public services (Öncel & Öncel, 2004: 6).

Harmful Tax Competition

Harmful tax competition can be characterized as the granting of special tax privileges that are essentially intended to erode the tax bases of other countries and are not directed towards tax policy objectives for the country (Akkaya, 2003: 20).

The model presented by Zodrow and Mieszkowski in their 1986 joint article "Pigou, Tiebout, Property Taxation and Underprovision of Local Public Goods" assumes two countries sharing an internationally mobile tax base, especially capital, and argues that their tax policies are interdependent. One country's tax revenue depends on the other country's tax rate. Since each country seeks to attract the mobile tax base from the other country, the model implies that this interdependence will trigger *a race to the bottom* in taxation. In equilibrium, tax rates are lower in both countries, which leads to underprovision of public goods and services on the one hand and to a shift of taxes from mobile capital to factors with little or no mobility such as labor and land on the other (Önal & Temelli, 2012: 215-216).

As countries engage in tax competition to attract capital and investment to their own countries, *a "race to the bottom"* begins. This kind of competition changes the direction of financial flows and real investments and leads to deviations from efficiency. Moreover, this competition between countries weakens the integrity of tax structures and tax justice. It leads to serious erosion in tax revenues. Moreover, tax competition causes the tax burden to shift to less mobile factors (primarily labor) (Çevik, 2004: 157). Similarly, Rodrik argues that the room for governments to collect taxes narrows; that when capital mobility is high, taxes on capital shift to more immobile factors such as labor; and that as

openness to the outside world increases, taxes on capital decrease, but taxes on labor increase (Rodrik, 1997: 80-81).

It is clear that it is not easy for the state to increase the tax burden on foreign direct investments. Because the heavy tax burden on foreign direct investments discourages investments. For this reason, states are forced to reduce the tax burden on capital. As a result of lowering the burden of taxes on capital, *expenditures and wages are taxed* more. This clearly has negative effects on income distribution (Kazgan, 2000: 235).

Indeed, Şenses draws attention to the difficult situation of labor and the increasing inequalities in income distribution with the following words (Şenses, 2021: 121):

> *"(...) neoliberal practices have been accompanied by increasing income inequalities and unemployment, erosion of real wages, and the gradual replacement of the emphasis on social values and goals with individual interests. Parallel to these developments, functional income distribution has also deteriorated rapidly. While the share of labor in total income declined, the share of capital increased. The increase in inequality was driven by factors such as the widening gap between qualified and unqualified labor wages in labor incomes, rapidly rising unemployment and wage increases lagging behind the increase in national income per capita."*

It is constantly emphasized that the tax measures introduced by countries have diversionary effects on production, trade, capital and investments. In addition, it is often stated that these tax regulations and practices lead to the shifting of tax bases between countries, thus creating unfair resources in terms of tax revenues to the detriment of some countries (Öncel & Öncel, 2004: 9).

In the 1980s, it was frequently emphasized that the savings that would be generated by easing the tax burden on capital gains and high-income groups would constitute the necessary resource for investments (Sönmez, 2009: 32). With the influence of these views, significant changes were made in the tax system in Türkiye in the 1980-1988 period and various exceptions and exemptions were introduced in favor of corporations in corporate tax. In 1984, the wealth declaration,

which was an important audit tool in terms of income tax, was abolished and *value added tax*, an indirect tax, was adopted in early 1985. With the adoption of the value added tax, the tax system in Türkiye became increasingly based on the contributions of wage earners and consumers (Boratav, 2008: 154).

Increasing income inequalities and decreasing job security as a result of globalization and increasing tax competition have increased the need of citizens for social security even more. However, the possibility that countries trying to provide social security services to their citizens may face a fiscal crisis due to tax competition has also increased (Akkaya, 2003: 9). Indeed, Rodrik emphasizes that the ability of states to allocate resources to social programs has decreased in the process of globalization (Rodrik, 1997: 92).

In addition to domestic reasons, international tax competition also plays a significant role in the decline in corporate tax rates. Countries have reduced corporate tax rates in order to remain competitive. A similar process has been followed in income tax, which taxes personal income, and countries have reduced income tax rates in order to stand out in international tax competition (Öncel & Öncel, 2004: 9).

In OECD countries, marginal tax rates on high income earners have been continuously reduced since 1980, with the marginal income tax rate for the top income group in OECD countries falling between 1984 and 2007. However, it is observed that general sales taxes and value added tax increased in the same period. An analysis of OECD data shows that statutory corporate income tax rates, which were around 45-50% in the early 1980s, declined to around 30% in 2007. It is also noteworthy that the rates of the tax collected from dividends within the scope of personal income tax also declined during the same period. As a matter of fact, this rate is below 20% as of 2005. However, a 2006 study by Gwartney and Lawson analyzed data from 17 selected countries around the world and emphasized that countries that substantially reduced the marginal tax rates of the top income groups faced the problem of increasing inequalities in income distribution after this policy change. When these authors made a comparison between countries with high and low tax policies in terms of income distribution between 1990 and 2000, they argued that countries with low tax policies faced

serious income inequalities while countries with high tax policies faced lower income inequalities (Albayrak, 2011: 307-308).

Therefore, since the 1980s, in the competition among countries to attract international capital to their own countries, reductions in personal income and corporate income tax rates have been important policy instruments used in this field. Since the 1980s, significant reductions in corporate income tax rates have been realized in the majority of OECD countries.

Between 1981 and 2021, there was a rapid decline in the average corporate tax rate applied in OECD countries. The average corporate tax rate in OECD countries, which was 46.9% in 1981, increased to 47.3% in 1985, but then decreased with increasing momentum over the years, reaching 40.7% in 1990, 35.2% in 1995, 32.3% in 2000, 27.8% in 2005, 25.1% in 2015 and 23% in 2021. In other words, in the 1981-2021 period, the corporate tax rate decreased by approximately 23.9 points compared to OECD averages (İçmen, 2022: 15). In 2024, the average corporate tax rate in OECD countries is 23.85%. In 2024, the world and European Union average corporate tax rates are 23.51% and 21.27%, respectively (Enache, 2024).

The average corporate tax rate of Group Seven (G7) countries decreased from 48.4% in 1981 to 48.1% in 1985, to 44% in 1995 and then to 40.4% in 2000, 36.1% in 2005, 32.8% in 2010, 31% in 2015 and 26.6% in 2021. In other words, it is seen that the average corporate tax rate of the G7 countries decreased by approximately 21.8 points in the 1981-2021 period (İçmen, 2022: 15).

Table 2, which shows the changes in the corporate tax rates of OECD countries in the 1981-2024 period, reveals that the corporate tax reduction in each country exhibited a different development. Ireland's corporate tax rate of 45% in 1981 remained constant at 12.5% in 2005 and beyond. Hungary's corporate tax rate, which was 40% in 1990, is 9% in 2024. Hungary (77.5% reduction) and Ireland (72.2% reduction) have realized the largest percentage reduction in corporate tax rates. These countries were followed by Finland (67.5%), Sweden (66.4%), Austria (58.2%), Norway (56.7%), United Kingdom (51.9%), Germany (50.2%) and Türkiye (50%). The OECD average reduction over this time period was approximately 49%.

Therefore, Hungary (9%) and Ireland (12.5%) have the lowest corporate tax rates among OECD countries as of 2024. The highest corporate tax rates were applied by Colombia (35%), Portugal (31.5%), Mexico (30%), Australia (30%), Costa Rica (30%), Germany (29.9%) and Japan (29.7%).

Table 3, which shows the changes in the corporate tax rates of the Balkan countries in the 2000-2024 period, shows that the corporate tax rates in the Balkan countries, which were between 15% and 40% in 2000, decreased over time and were between 9% and 25% in 2008 and between 10% and 22% in 2024. In 2000, the average corporate tax rate in the Balkan countries was 26.5%, whereas in parallel with the downward trend in the world in general, this average rate decreased over time to 14.2% in 2008 and to 13.3% in 2012. Thereafter, the average rate fluctuated between 14% and 14.8% in the 2013-2024 period, similar to the stabilization in corporate tax rates, which was also observed across the world. In six of the twelve years in question, the rate was 14.6%. In 2024, the average corporate tax rate of the Balkan countries was 14.8%. Therefore, there is a decrease of 11.7 points in the average corporate tax rate of the Balkan countries in the 2000-2024 period.

When the changes in corporate tax rates between 2000 and 2024 are analyzed on a country-by-country basis for the Balkan countries, it is noteworthy that Bosnia and Herzegovina (-20 points), Greece (-18 points), Crotia (-17 points), Albania (-15 points) and Bulgaria (-15 points) are the Balkan countries with the largest decrease in these rates. As a matter of fact, Bosnia and Herzegovina (66.7% reduction) and Bulgaria (60% reduction) are the two countries that have realized the largest percentage reduction in corporate tax in the Balkan countries. Therefore, Bosnia and Herzegovina, Bulgaria, Republic of North Macedonia and Republic of Kosovo have the lowest corporate tax rates among the Balkan countries with 10% in 2024. The highest corporate tax rates are applied by Greece (22%), Slovenia (22%) and Crotia (18%).

Among these three countries, the corporate tax rates of Greece and Croatia are the same as in 2023, while only Slovenia's corporate tax rate is different from 2023. This is because the corporate tax rate in Slovenia was temporarily increased from 19% to 22% in 2024 for five years until 2028. This five-year tax was

set to finance the country's reconstruction efforts after the massive floods in August 2023 (Enache, 2024).

In 2024, when the twenty countries with the lowest statutory corporate tax rates in the world are analyzed (excluding countries with a statutory corporate tax rate of zero percent), it is seen that eighteen of these twenty countries have corporate tax rates of 12.5% or less. Turkmenistan has the lowest statutory corporate tax rate at 8%. Nine countries have a statutory corporate tax rate of 10%, four of which are Balkan countries (Bosnia and Herzegovina, Bulgaria, Republic of North Macedonia and Republic of Kosovo). Hungary and Ireland are the only two OECD members represented among these 20 countries (Enache, 2024).

Between 1980 and 2003, when the changes in personal income tax rates are analyzed, it is observed that there has been a decrease in these tax rates in most OECD and EU countries. It is noteworthy that the average personal income tax rate in OECD countries decreased by 23 points from 67% in 1980 to 44% in 2003 (Kovancılar, Miynat & Bursalıoğlu, 2007: 51).

Between 2003 and 2018, the personal income tax rates applied to the top income bracket in some OECD countries have been reduced slightly, while these rates have increased in some OECD countries. In fact, it is noteworthy that the personal income tax rates applied to the top income bracket in OECD countries followed a fluctuating course during the period in question. In fact, the OECD average also followed a fluctuating trend between 39% and 43.6% during this period (Tax Policy Center, 2024).

While Hungary applied a 40% rate to the top income bracket in 2003, this rate was 32% in 2010, 16% in 2011 and 15% in 2016. In 2024, Hungary (15%), Estonia (20%), Czechia (23%), Slovak Republic (25%) and Costa Rica (25%) have the lowest personal income tax rates among OECD countries. With the exception of these five countries, all other OECD countries applied personal income tax rates of more than 30%. In 2024, Japan (55.9%), Denmark (55.9%), France (55.4%) and Austria (55.0%) have personal income tax rates exceeding 55% for the top income bracket among OECD countries (See Table 4).

To summarize, corporate tax rates have declined continuously on a global basis over the last 44 years. Since 1980, the average statutory corporate tax rate has declined in every region. In 1980, the world's average statutory corporate tax rate was 40.18%, which declined to 23.51% in 2024. However, after decades of steady decline, corporate tax rates have stabilized in recent years. For 2024, Asia (19.74%) and Europe (20.18%) have the lowest average statutory corporate tax rates of all regions in the world. South America (28.38%) and Africa (27.28%) have the highest average rates. Today, most countries have a corporate tax rate below 30% (Enache, 2024).

Criteria Determining Harmful Tax Competition

The concept of harmful tax competition is under serious scrutiny in organizations such as the OECD and the EU. It is very difficult to find a single and objective criterion for determining whether a tax measure is harmful or not. In some studies of the OECD, various criteria for harmful tax competition have been put forward. The criteria used to define unfair tax competition are outlined below (Öncel & Öncel, 2004: 10-12):

- Establishing a zero tax or very low rate preferential tax regime
- Implementing a discriminatory tax regime specific to foreign capital and investments and outside the general tax system
- Implementing a closed (or ring-fenced) regime
- Creating a gap in international information exchange
- Taking artificial measures in determining the tax base

The OECD has emphasized that low or no-income taxation alone is not sufficient to create harmful tax competition. As listed above, harmful tax competition occurs when low or zero taxation is combined with practices such as special free zone systems closed to residents, lack of transparency and information exchange regarding regulations and administrative rules (Çalıcıoğlu, 2003: 11). Countries that apply at least two of these criteria are considered to be in harmful tax competition (Öncel & Öncel, 2004: 22).

Harmful Tax Competition Practices

Harmful tax competition practices are analyzed under two sub-headings: *tax havens* and *preferential tax regimes* within the framework set by the OECD:

Tax Havens

Within the framework of tax competition among the countries of the world, the most extreme dimension of this downward trend in corporate tax rates has been realized by some countries, which are also called *tax havens*. While many countries struggling to attract international investments to their own countries have reduced their corporate tax rates, countries called tax havens have reduced their corporate tax rates to zero and offered the most attractive investment opportunity to international investors from a tax perspective (Susam & Oktayer, 2012: 178).

Most of the tax havens located in different parts of the world are countries that are not suitable to be industrial countries due to their small geographical area and scarce natural resources. Therefore, since they cannot encourage physical investments, they try to become centers of attraction in terms of financial services and portfolio investments and aim to reduce the tax burden of individuals and institutions by providing banking, accounting, legal services and various infrastructure services (Öz, 2013: 159).

In order for a country to be considered a tax haven, that country must have adopted a very low taxation rate or generally no taxation at all in relation to the specified activities in order to attract more foreign capital, financial institutions and other service sectors to the country (Öncel & Öncel, 2004: 14). In the OECD's report titled "Harmful Tax Competition - An Emerging Global Issue" published in 1998, tax havens are defined as systems that offer special and discriminatory tax regulations and financial secrecy to non-resident capital in order for it to escape tax responsibilities in the countries where it is resident (Çalıcıoğlu, 2003: 10-11).

Tax havens, whose aim is to attract foreign capital to their countries, succeed in attracting capital and investments from other countries and especially from international financial markets thanks to the tax and non-tax advantages they

provide. These countries, directly or indirectly, create harmful tax competition as they pave the way for tax bases originating from other countries to be formed in their own countries (Öncel & Öncel, 2004: 15).

The four main characteristics that define tax havens are as follows (Giray, 2003: 131):

•   Legal regulations in tax haven countries prevent effective information exchange (sharing). In other words, they apply strict secrecy rules against other countries' tax administrations.

•   Lack of transparency regarding tax legislation, tax jurisdiction and tax administration.

•   Although the income-generating activities do not take place in these countries, the obligors direct their transactions to these countries only due to tax privileges.

•   In particular, no or low rates of tax on transactions by non-residents.

The State of Tax Justice 2020 Report, using data from the OECD showing how much revenue multinational corporations report and how much tax they pay in which country, was published by the Tax Justice Network in November 2020. The report draws attention to the fact that governments lose more than $427 billion in taxes annually due to international tax abuse. Of this $427 billion, about $245 billion is lost to multinational corporations that under-report how much profit they actually make in the countries where they do business and, as a result, shift profits to tax havens to pay less tax than they should. The remaining $182 billion is lost to wealthy individuals who hide their undeclared assets and income beyond the reach of the law. The report also points out that high-income countries lose 382.7 billion dollars in taxes due to international tax abuse, while low-income countries lose 45 billion dollars. However, it is also specifically stated that the tax losses of low-income countries are generally proportionally larger than those of high-income countries compared to the tax revenue they collect (Tax Justice Network, 2020: 4, 12).

The State of Tax Justice 2024 Report states that global revenue losses from cross-border tax abuse amount to $492 billion annually, of which $347.6 billion

is due to corporate tax abuse by multinational corporations and $144.8 billion is due to undeclared overseas assets of wealthy individuals. The report argues that global tax abuse harms everyone, and draws attention again to the fact that while high-income countries lose larger sums, the losses of low-income countries account for a larger share of their budgets (Tax Justice Network, 2024: 12-13).

Preferential Tax Regimes

Another harmful tax practice is preferential tax regimes. Preferential tax regimes target factors of production with increased mobility in the globalization process. In order to attract highly mobile capital to their economies, countries implement preferential tax policies by making their tax systems more attractive compared to other countries. However, these preferential tax policies have been heavily criticized because they can erode the tax bases of other countries and negatively affect their tax systems. Preferential tax regimes are used in many countries, whether they are tax havens or not. Countries that apply preferential tax regimes are more advantageous than other countries, but it is also clear that there is unfair competition. This is because preferential tax regimes are considered as harmful tax competition (Çukurçayır, 2015: 54-55).

The main features of preferential tax regimes can be listed as follows (Giray, 2003: 131):

- Zero or very low effective tax burden through the way the tax base is determined.
- Tax incentives only available to foreign investors.
- Lack of transparency in the system.
- Lack of effective information exchange.

The potentially harmful preferential tax regimes in OECD member countries are particularly concentrated in the areas of insurance, finance and banking, even though these are legitimate business activities in their own right (Çalıcıoğlu, 2003: 11).

Preventing Harmful Tax Competition

Both the OECD and the EU are working on solutions to prevent harmful tax competition. The report on harmful tax competition prepared by the OECD Committee on Fiscal Affairs was approved by the OECD Council of Ministers on April 9, 1998. In this report, the necessity to *"develop measures to address the distorting effects of harmful tax competition on investment and financing decisions and its consequences for national tax bases"* was mentioned. The report emphasizes the identification of harmful preferential tax regimes and tax havens and the presentation of possible solutions to combat them (Çalıcıoğlu, 2003: 9-10).

The report envisages "uniform" taxation across OECD countries. For example, if a country allows cost cutting and does not tax some incomes, it will be considered "harmful". The report also emphasizes the need to limit the activities of tax haven countries that encourage harmful tax competition. It is recommended that existing agreements with tax havens should be abolished and that no future agreements should be concluded with these countries. In addition, in the OECD report titled "Global Tax Cooperation and Developments" published in 2000, there are a number of sanctions decisions taken by the OECD to prevent harmful tax competition (Giray, 2003: 131, 135).

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The EU's efforts to combat harmful tax competition are mainly focused on tax harmonization. During the enlargement process of the EU, the importance of tax systems and policies within the EU has increased even more in parallel with this process. Therefore, tax harmonization policies have started to be implemented in order to eliminate the differences in the tax systems of the new EU member

states. In EU member states, studies on harmful tax competition mainly focus on corporate tax. The Ruding Committee Report, The Monti Memorandum Commission Report and Code of Conduct are some of the various studies conducted in the EU to combat harmful tax competition (Çukurçayır, 2015: 57-59).

As a result, various efforts have been made by the EU and the OECD to prevent harmful tax competition. The reports issued by the OECD emphasized the necessity of applying a uniform tax across OECD countries. In addition, some sanction decisions have been taken to prevent harmful tax competition.

In other words, in order to prevent harmful tax competition today, it is of great importance for all countries to harmonize their tax systems and for countries to cooperate more intensively and more comprehensively internationally on the tax policies they pursue (Akkaya, 2003: 24).

Harmonization of the tax systems of countries can ensure the efficient distribution of factors of production on a world scale. Because, as a result of the harmonization of tax systems, the impact of taxes on the location decisions of factors of production will be minimized, and thus these factors can be used where they are most efficient (Bakkal, 2003: 93).

However, in order to achieve a comprehensive tax harmonization, all countries should seriously cooperate on this issue. However, countries that have an advantage over other countries in terms of tax competition, in other words, countries that benefit from tax competition, are reluctant to cooperate for tax harmonization in areas where they have an advantage (Akkaya, 2003: 24).

In 2013, the Action Plan on Base Erosion and Profit Shifting (BEPS) was established upon the call of G20 countries. In 2019, within the scope of BEPS, studies were initiated to ensure that multinational corporations pay taxes in the country where they are physically located as well as in the country where they earn income and to apply a global minimum corporate tax. As a matter of fact, in December 2021, the OECD reported that 137 countries signed the "Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy". In the BEPS 2.0 Reform Package, Pillar 1 focuses on the reallocation of taxation rights and includes the taxation of a portion of the income earned by companies with a global turnover exceeding €20 billion in a period and a profit

margin above 10 percent in the country where the income is actually earned. Pillar 2 relates to the minimum level of taxation of the profits of multinational corporations and aims to limit tax competition on corporate income through the implementation of a global minimum corporate tax rate that countries can use to protect their tax base. Indeed, in this framework agreement signed by 137 countries, it is stated that the global corporate tax rate should be at least 15%. Pillar 2 mainly affects multinational corporations with an annual turnover of more than €750 million and aims to ensure that these companies are taxed at least 15% in each country in which they operate (İçmen, 2022: 13-16, 19).

It is also noteworthy that this 15% rate is considerably lower than the average corporate tax rate of 23.85% for OECD countries in 2024. The OECD argues that a 15% global corporate tax rate under Pillar 2 would generate additional global tax revenues of around $150 billion per year. Therefore, the OECD-led global minimum corporate tax is an important global step to prevent tax avoidance by multinational corporations. However, the proposal for a global minimum corporate tax has also been subject to serious criticism in terms of the tax rate and which countries will be granted the right of additional taxation (İçmen, 2022: 16, 19).

Conclusion

In the globalization process, it has become more difficult for tax administrations to tax highly mobile capital and highly skilled labor. Foreign capital investments are of great importance especially for developing countries with low national income levels, lack of savings and investment, and lack of economic stability. Therefore, in order to attract foreign capital to their countries, these countries use various tax measures (tax reductions, investment discounts, tax holidays, etc.). Tax reductions realized within the framework of tax competition are the most prominent form of competition between countries. These countries reduce the rates of taxes on capital in order to attract foreign capital to their countries. Some countries even choose not to seriously address transfer pricing manipulation.

Therefore, while the tax burden on highly mobile capital is reduced, the tax burden on unskilled and semi-skilled labor, which remains within national borders and whose mobility is extremely low compared to capital, is constantly increased. As a

matter of fact, this situation is incompatible with the concept of tax justice. As can be seen, tax competition has led to a shift in the tax burden towards labor.

In line with tax competition policies, the decline in the share of direct taxes in total tax revenues has led to a slightly higher burden on indirect taxes. As a result of the increase in the share of indirect taxes in total tax revenues, the tax base has become predominantly consumption-based.

With globalization, fiscal termites that gnaw the tax revenues of countries must be included in the tax net. It is very difficult for nation-states to solve the global tax problems that nation-states face, especially harmful tax competition, on their own. Therefore, if the problems are global, the solutions must also be global. Therefore, a multilateral effort by nation-states is required to solve global tax problems. Important steps are being taken in this direction in the OECD and EU platforms. Tax rate differences between countries can be eliminated through harmonization of tax systems. At this point, efforts to implement a global minimum corporate tax rate are of great importance. In addition, a strong cooperation between tax administrations and a transparent exchange of information can prevent the erosion of tax bases to a certain extent.

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Table 1. *Multinational Corporations with the Highest Revenues in 2024*

Rank	Name	Sector	Revenues (US $ Million)	Profits (US $ Million)
1	Walmart	Retailing	$648,125	$15,511
2	Amazon	Retailing	$574,785	$30,425
3	State Grid	Energy	$545,947.5	$9,204.3
4	Saudi Aramco	Energy	$494,890.1	$120,699.3
5	Sinopec Group	Energy	$429,699.7	$9,393.4
6	China National Petroleum	Energy	$421,713.6	$21,294.7
7	Apple	Technology	$383,285	$96,995
8	United Health Group	Health Care	$371,622	$22,381
9	Berkshire Hathaway	Financials	$364,482	$96,223
10	CVS Health	Health Care	$357,776	$8,344
11	Volkswagen	Motor Vehicles & Parts	$348,408.1	$17,944.5
12	Exxon Mobil	Energy	$344,582	$36,010
13	Shell	Energy	$323,183	$19,359
14	China State Construction Engineering	Engineering & Construction	$320,430.5	$4,371.5
15	Toyota Motor	Motor Vehicles & Parts	$312,018.2	$34,214.4

Source: Fortune (2025). *Fortune Global 500*. Access address: https://fortune.com/ranking/global500/. February 12, 2025.

Table 2. *OECD Countries: Statutory Corporate Income Tax Rates* (1981-2024)-(%)*

Country	1981	1985	1990	1995	2000	2005	2010	2015	2020	2023	2024	Difference (1981-2024)
Australia	46	46	39	36	34	30	30	30	30	30	30	-16
Austria	55	55	30	34	34	25	25	25	25	24	23	-32
Belgium	48	45	41	40,2	40,2	34	34	34	25	25	25	-23
Canada	50,9	49,4	41,5	44,6	42,4	34,2	29,5	26,4	26,3	26,1	26,1	-24,8
Chile	48,6	23,5	32,5	35	15	17	17	22,5	25	27	27	-21,6
Colombia	40	40	30	30	35	35	33	25	32	35	35	-5
Costa Rica	45	50	30	30	30	30	30	30	30	30	30	-15
Czechia	NA	NA	NA	41	31	26	19	19	19	19	21	-20
Denmark	40	50	40	34	32	28	25	23,5	22	22	22	-18
Estonia	NA	NA	NA	26	26	24	21	20	20	20	20	-6
Finland	61,5	61,8	44,5	25	29	26	26	20	20	20	20	-41,5
France	50	50	42	36,7	37,8	35	34,4	38	32	25,8	25,8	-24,2
Germany	60	60	54,5	55,1	52	38,9	30,2	30,2	29,9	29,9	29,9	-30,1
Greece	45	49	46	35	40	32	24	29	24	22	22	-23
Hungary	NA	NA	40	18	18	16	19	19	9	9	9	-31
Iceland	NA	NA	NA	33	30	18	18	20	20	20	21	-12
Ireland	45	50	43	38	24	12,5	12,5	12,5	12,5	12,5	12,5	-32,5
Israel	NA	NA	NA	37	36	34	25	26,5	23	23	23	-14
Italy	36,3	46,4	46,4	53,2	41,3	37,3	31,4	31,3	27,8	27,8	27,8	-8,5
Japan	NA	NA	50	50	40,9	39,5	39,5	32,1	29,7	29,7	29,7	-20,3
Republic of Korea	NA	NA	NA	NA	30,8	27,5	24,2	24,2	27,5	26,4	26,4	-4,4
Latvia	NA	NA	NA	25	25	15	15	15	20	20	20	-5
Lithuania	NA	NA	NA	29	29	15	15	15	15	15	15	-14
Luxembourg	NA	NA	NA	40,3	37,5	30,4	28,6	29,2	24,9	24,9	24,9	-15,4
Mexico	42	42	36	34	35	30	30	30	30	30	30	-12
Netherlands	48	43	35	35	35	31,5	25,5	25	25	25,8	25,8	-22,2
New Zealand	45	45	33	33	33	33	30	28	28	28	28	-17
Norway	50,8	50,8	50,8	28	28	28	28	27	22	22	22	-28,8

Country												Difference
Poland	NA	NA	NA	40	30	19	19	19	19	19	19	-21
Portugal	49	55,1	40,2	39,6	35,2	27,5	26,5	29,5	31,5	31,5	31,5	-17,5
Slovak Republic	NA	NA	NA	40	29	19	19	22	21	21	21	-19
Slovenia	NA	NA	NA	NA	25	25	20	17	19	19	22	-3
Spain	33	35	35	35	35	35	30	28	25	25	25	-8
Sweden	57,8	56,6	53	28	28	28	26,3	22	21,4	20,6	20,6	-37,2
Switzerland	33	31,9	30,6	28,5	24,9	21,3	21,2	21,2	21,2	19,7	19,6	-13,4
Türkiye	50	40	46	25	33	30	20	20	22	25	25	-25
United Kingdom	52	40	34	33	30	30	28	20	19	25	25	-27
United States of America	49,7	49,8	38,7	39,6	39,3	39,3	39,2	39	25,8	25,8	25,6	-24,1

Source: Enache, C. (2024). Corporate Tax Rates Around the World, 2024. *Tax Foundation.* Access address: https://taxfoundation.org/data/all/global/corporate-tax-rates-by-country-2024/. December 28, 2024.

*The rates in Table 2 show the sum of taxes imposed by both authorities in countries with separate taxation by central and local authorities.

Table 3. *Balkan Countries: Statutory Corporate Income Tax Rates (2000-2024)-(%)*

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Difference (2000-2024)
Albania	30	25	25	25	25	23	20	20	10	10	10	10	10	10	15	15	15	15	15	15	15	15	15	15	15	**-15**
Bosnia and Herzegovina	30	30	30	30	30	30	30	30	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	**-20**
Bulgaria	25	20	15	23,5	19,5	15	15	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	**-15**
Crotia	35	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	18	18	18	18	18	18	18	18	18	**-17**
Greece	40	37,5	35	35	35	32	29	25	25	25	24	20	20	26	26	29	29	29	29	24	24	22	22	22	22	-18
Republic of Kosovo	x	x	x	x	x	x	x	x	x	x	x	x	x	x	10	10	10	10	10	10	10	10	10	10	10	**0**

Country																										Change
Montenegro	20	20	20	20	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	15	15	15	-5
Republic of North Macedonia	15	15	15	15	15	15	15	12	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	-5
Romania	25	25	25	25	25	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	-9
Serbia	20	20	20	14	10	10	10	10	10	10	10	10	10	15	15	15	15	15	15	15	15	15	15	15	15	-5
Slovenia	25	25	25	25	25	25	25	23	22	21	20	20	18	17	17	17	17	19	19	19	19	19	19	19	22	-3
Balkan Countries Average Corporate Income Tax Rate	26,5	23,8	23	23,3	21,4	19,5	18,9	17,5	14,2	14,1	13,9	13,5	13,3	14,3	14,4	14,6	14,6	14,6	14,6	14,2	14,2	14	14,6	14,6	14,8	

Source: OECD (2025). *OECD Data Explorer: Corporate Income Tax Statutory and Targeted Small Business Rates.* Access address: https://data-explorer.oecd.org/. March 6, 2025.

Table 4. *OECD Countries: Top Statutory Personal Income Tax Rates* (2003-2024)-(%)*

Country	2003	2010	2015	2020	2022	2024
Australia	48,5	46,5	49,0	47,0	47,0	47,0
Austria	43,7	43,7	50,0	55,0	55,0	55,0
Belgium	53,5	53,7	53,8	52,9	52,9	52,9
Canada	46,4	46,4	49,5	53,5	53,5	53,5
Chile	40,0	40,0	40,0	35,0	40,0	40,0
Colombia	35,0	33,0	33,0	39,0	39,0	39,0
Costa Rica	15,0	15,0	15,0	25,0	25,0	25,0
Czechia	32,0	15,0	15,0	15,0	23,0	23,0
Denmark	59,0	55,4	55,8	55,9	55,9	55,9
Estonia	26,0	21,0	20,0	20,0	20,0	20,0
Finland	53,0	49,0	51,6	51,2	51,3	51,5
France	53,4	46,7	54,5	55,4	55,4	55,4

Germany	51,2	47,5	47,5	47,5	47,5	47,5
Greece	40,0	45,0	50,0	54,0	44,0	44,0
Hungary	40,0	32,0	16,0	15,0	15,0	15,0
Iceland	43,6	46,1	46,2	46,2	46,3	46,3
Ireland	44,0	52,0	48,0	48,0	48,0	48,0
Israel	50,0	45,0	50,0	50,0	50,0	50,0
Italy	46,1	45,2	48,8	47,2	47,2	47,2
Japan	50,0	50,0	55,9	55,9	55,9	55,9
Korea	39,6	38,5	41,8	46,2	49,5	49,5
Latvia	25,0	26,0	23,0	31,6	31,2	31,2
Lithuania	33,0	15,0	15,0	32,0	32,0	32,0
Luxembourg	39,0	39,0	43,6	45,8	45,8	45,8
Mexico	34,0	30,0	35,0	35,0	35,0	35,0
Netherlands	52,0	52,0	52,0	49,5	49,5	49,5
New Zealand	39,0	35,5	33,0	33,0	39,0	39,0
Norway	47,5	40,0	39,0	38,2	39,4	39,6
Poland	40,0	32,0	32,0	32,0	32,0	32,0
Portugal	40,0	45,9	56,5	53,0	53,0	53,0
Slovak Republic	38,0	19,0	25,0	25,0	25,0	25,0
Slovenia	50,0	41,0	50,0	50,0	45,0	50,0
Spain	45,0	43,0	45,0	43,5	45,0	45,0
Sweden	56,2	56,6	57,0	52,3	52,2	52,4
Switzerland	42,1	41,7	41,7	41,7	41,5	41,4
Türkiye	40,6	35,7	35,8	40,8	40,8	40,8
United Kingdom	40,0	50,0	45,0	45,0	45,0	45,0
United States	41,6	41,9	46,3	43,7	43,7	43,7

Source: OECD (2025). *OECD Data Explorer: Top Statutory Personal Income Tax Rates.* Access address: https://data-explorer.oecd.org/. March 8, 2025.

*Rates applied to the top income bracket.

book
reviews

Petrit Pollozhani, Merale Fetahi and Arbresh Raveni, *Albanian Emigrations and Their Effects on Demographic and Socio-Economic Developments in North Macedonia*

Arberia Design, 2025, pp.421.

Reviewer: Arbresh Raveni

The book "*Albanian emigrations and their effects on demographic and socio-economic developments in North Macedonia*" was published in Tetovo in 2024 by Arberia Design. It is authored by Petrit Pollozhani, Merale Fetahi, and Arbresh Raveni, three established academics in the field of economics. Petrit Pollozhani is a distinguished economist and author with decades of experience, and along with Merale Fetahi, an expert in international economics and finance, serves at the Faculty of Economics at the University of Tetova. Arbresh Raveni, who specializes in macroeconomics and public finance is currently affiliated with the Faculty

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of Economics at Mother Teresa University in Skopje. This book is a valuable contribution to the scholarship on migration, development, and regional inequality in the Western Balkans. Synthesizing a rich blend of historical narrative, economic theory, demographic analysis, and original empirical research, the book provides a multidimensional framework for understanding the long-term consequences of Albanian emigration from North Macedonia. While rooted in a specific geopolitical context, its thematic scope, ranging from state-induced displacement to diaspora engagement and policy responses, resonates with broader global debates on migration and development. The authors deploy a methodologically rigorous approach, combining econometric modelling with qualitative insights, to dissect both the structural drivers and the socio-economic repercussions of emigration. Rather than viewing migration solely as an economic phenomenon, the study situates it within the intersecting dynamics of historical injustice, institutional weakness, and socio-political marginalization. This book will be of particular interest to scholars of migration and economics, as well as to policymakers, regional planners, and practitioners engaged in diaspora affairs and post-socialist development. It challenges conventional paradigms and compels a rethinking of how migration is conceptualized, measured, and governed in contexts marked by systemic inequities and contested nation-building processes.

The first chapter offers a comprehensive and multidimensional exploration of international migration, presenting it as a structural phenomenon with far-reaching economic, political, and demographic consequences. Positioned at the intersection of globalization, demographic transformation, and socio-economic evolution, the chapter offers both a theoretical and empirical foundation for understanding the dynamics of population movement in the modern era. The scope of analysis is global, yet it gives specific attention to European migration trends and the context of the Western Balkans, particularly highlighting the push-pull factors influencing emigration from economically transitional regions such as North Macedonia. The chapter begins with contextualizing international migration within the broader trajectory of structural upheavals, such as economic transitions, political crises, and global inequalities, that have historically influenced and continue to shape migratory patterns. It highlights

that while migration is a historical constant, its contemporary acceleration and complexity demand renewed scholarly and policy attention. A significant portion of the chapter is devoted to identifying and classifying the types of migration, drawing distinctions based on temporality, causality, and destination. This taxonomy provides the analytical foundation for subsequent discussions on the motivations and risks associated with migration, ranging from economic aspirations and security concerns to social dislocation and identity dilemmas. A salient contribution of this chapter lies in its rigorous treatment of demographic implications, particularly the ways in which migration affects population structures, fertility rates, and age distributions in both origin and host countries. It brings to the fore the concept of demographic imbalance, emphasizing how migration flows may serve as corrective mechanisms in aging societies or, conversely, exacerbate depopulation in sending countries. The inclusion of population growth projections for 2030 underscores the forward-looking ambition of the analysis and reinforces the urgency of rethinking demographic policies in light of migratory movements. The economic implications of migration are addressed with a dual lens: the country of origin, which often suffers from brain drain but gains through remittances, and the host country, which grapples with integration challenges but benefits from labour force rejuvenation. The chapter does well to bridge macro-level economic effects, such as labour market impacts, with micro-level social considerations, including the subjective and non-economic motivations of migrants. The chapter culminates in a regional analysis of the Western Balkans, where the intersection of democratic transition, weak institutions, and underdeveloped public services creates fertile ground for sustained emigration. It uses macroeconomic indicators to illustrate the systemic underpinnings of migratory pressure in the region.

The second chapter presents a compelling and thorough investigation of Albanian emigration from the territories of the former Yugoslavia, providing a crucial historical framework for understanding the long-term and often traumatic processes of displacement, dispossession, and demographic transformation. The chapter situates Albanian emigration not as a peripheral or episodic phenomenon but as a central and enduring feature of Balkan political history and state formation, shaped by systematic state violence, colonial ambitions, and

ethno-political engineering. The chapter systematically explores five historical periods of coerced and politically motivated displacement of Albanian populations. It begins with the Russo-Turkish War (1877–78) and Serbia›s annexation of key regions, leading to mass expulsions of Albanians. The interwar period (1912–41) highlights the Serbian monarchy›s colonization policies aimed at altering Kosovo›s ethnic composition under the «Temporary Law on the Regulation of Liberated Areas.» In the mid-20th century (1950–66), the Turco-Yugoslav Convention prompted the mass emigration of Albanians misclassified as Turks. The 1980s saw intensified repression during Kosovo›s bid for republican status within Yugoslavia. Finally, the 1990s marked the post-socialist transition, triggering another wave of socio-economic migration. A focal objective of the chapter is to trace the objective historical conditions under which Albanians were forcibly expelled or coerced into emigration, especially from Kosovo and Macedonia. The narrative is grounded in a critical historiographical tradition that prioritizes archival evidence, consular reports, and demographic statistics, while simultaneously contesting official Serbian and Yugoslav accounts that often obscure or misrepresent the ethnic and political motivations behind population transfers. The chapter also delves into earlier episodes of displacement from Chameria (1878, 1913, and 1944–45), broadening the spatial scope of analysis and underscoring the transnational nature of the Albanian exodus. This study treats the forced migrations not merely as historical episodes, but as part of a state-engineered strategy of ethnic homogenization, in which Albanians were systematically excluded from state-building projects through expropriation, colonization, and physical removal. A significant contribution of the chapter is its sustained focus on North Macedonia, which receives particular attention due to its historically significant Albanian population and its status as a major locus of both forced and voluntary emigration. The study identifies a nexus of economic underdevelopment, political exclusion, and social marginalization as the key drivers of Albanian emigration from North Macedonia. These factors are exacerbated by persistent phenomena such as corruption, nepotism, judicial dysfunction, and the politicization of institutions. One of the most alarming trends highlighted is the massive and increasingly permanent emigration of highly qualified individuals, leading to brain drain, population decline, and

long-term demographic erosion. In terms of methodology, the chapter demonstrates scholarly rigor through its interdisciplinary approach, weaving together historical sociology, political economy, and demography. The empirical richness of the text is matched by its critical theoretical framing, which interrogates state power, ethnic politics, and the geopolitics of migration. This chapter constitutes a seminal contribution to the historiography of migration in the Balkans. It not only challenges dominant narratives that depoliticize emigration but also foregrounds the lived experiences of displacement as central to the Albanian national condition. It is essential reading for scholars of migration, nationalism, and Southeastern European history, offering both analytical depth and moral clarity in confronting the legacies of forced migration.

Chapter three explores the pivotal role of the Albanian diaspora and the broader challenges of national development and minority inclusion in North Macedonia. Through a thoughtful blend of economic geography, demographic trends, and political critique, it lays the groundwork for understanding these complex issues, offering fresh perspectives for anyone studying the Balkans, migration, or post-socialist societies. The chapter opens with a critical overview of North Macedonia's transition economy, emphasizing the slow and uneven pace of development since independence. With a GDP growth rate averaging only 1.2% from 1991 to 2023, the study reveals the deep structural challenges that hinder economic transformation. Privatization failures, political instability, and underinvestment have not only impeded development but also fuelled emigration, particularly among Albanians, who remain disproportionately affected by socio-economic exclusion. A key focus is the regional economic structure, revealing stark disparities across Macedonian regions. Using GDP and investment data, the chapter shows how underdeveloped regions with high Albanian populations, such as Pollog and the Northeastern region, suffer from low productivity, weak competitiveness, and alarming levels of unemployment. The analysis ties these imbalances directly to migratory patterns, arguing that economic stagnation and uneven development are both causes and consequences of large-scale emigration. The chapter then examines labour market indicators, such as productivity per labour unit, export-import performance, and employment/unemployment rates, to assess regional capacities. It highlights the

limited competitiveness of peripheral regions and underscores how low investment translates into underemployment, social marginalization, and heightened emigration pressure. The demographic section offers a nuanced examination of population trends, focusing on the interplay between migration and natural population growth. The author critically revisits historical population policies, including discriminatory anti-natalist policies targeting Albanians, and evaluates their long-term impact on demographic structures. Through a detailed analysis of census data from 1948 to 2021, the chapter documents the decline in population growth and changing ethnic composition, warning of a looming demographic crisis, especially as emigration becomes increasingly permanent and includes highly educated youth. A particularly strong segment of the chapter is its treatment of the ethno-political dimensions of demography. It traces historical manipulations of census categories, especially regarding Albanian identification, and exposes how population data have been politicized to shape national narratives and influence policy. Furthermore, the chapter critiques constitutional limitations on minority rights, which tie linguistic and symbolic rights to demographic thresholds, thus perpetuating marginalization through technical-legal frameworks.

Chapter four presents a groundbreaking empirical analysis of the Albanian diaspora from North Macedonia, serving as the first study to explore their propensity to return and invest in their homeland. Based on a comprehensive survey conducted between 2017 and 2023, it focuses on emigrants from the southwestern municipalities of Struga, Tetovo, and Kërçova, examining their migration patterns, socio-economic integration, and aspirations for reintegration. The findings underscore the diaspora›s diverse professional engagements and a notable inclination toward maintaining economic and cultural ties with their homeland. While 34% of respondents express a willingness to return, many show interest in local investments, influenced by factors such as age, education, and income. Additionally, the preservation of language and familial connections highlights the importance of cultural continuity, reflecting the evolving nature of diaspora identity across generations. Although the study's scope is limited to emigrants from the southwestern region, it makes a significant contribution to migration literature by offering a unique perspective on the

dynamics of diaspora engagement. The chapter concludes with practical policy recommendations aimed at facilitating investment, fostering reintegration, and strengthening cultural connections, providing actionable insights for leveraging the developmental potential of the Albanian diaspora.

Chapter five examines economic disparities and migration dynamics in North Macedonia through the application of three distinguished econometric frameworks: Shift-Share Analysis, the Gravity Model of Migration, and the Probit Model. The chapter begins with a Regional Shift-Share Analysis, which uncovers significant structural disadvantages in North Macedonia's least developed regions, including Pollog and the Southwestern and Northeastern areas. By disaggregating economic performance into detailed sub-sectors, the analysis demonstrates how systemic underdevelopment in Albanian-majority areas drives large-scale emigration. Building upon this macroeconomic foundation, the Gravity Model of Migration is applied to identify determinants of emigration flows from 2009 to 2022. The findings reveal that economic stagnation and adverse structural conditions at home, coupled with economic opportunity and cultural-linguistic affinity abroad, drive emigration. This macro-level perspective sets the stage for the chapter›s most novel contribution: a micro-level examination through the Probit Model, which is based on original survey data and explores return migration and investment behaviour among Albanian emigrants from the southwestern region. Key findings indicate that older emigrants, those with property ownership, and those maintaining strong ties to their homeland through frequent visits and remittances are more likely to return. Conversely, emigrants with higher education levels, long-term residence permits abroad, and children enrolled in host-country schools are less inclined to repatriate. Generational differences further underscore this trend, with first-generation emigrants exhibiting a higher likelihood of return compared to third- and fourth-generation counterparts. A lack of willingness to invest in the homeland strongly correlates with a reduced probability of return. By synthesizing macroeconomic and micro-level analyses, the chapter offers a rigorous applied econometric study that sharpens understanding of migration and diaspora dynamics while informing regional development policy in post-Yugoslav North Macedonia.

Chapter six stands as a model of applied demographic foresight and policy relevance. It not only quantifies the severity of North Macedonia's demographic decline but also situates it within a broader European context of migratory flux and institutional response. Its rigorous projections and comparative policy analysis offer invaluable insights for scholars, planners, and policymakers confronting the dual challenge of depopulation and emigration in transition economies. The first analytical component focuses on population projection scenarios for the period 2022–2070. Employing variant-based simulations (low, medium, high, and constant fertility), the study forecasts a pronounced population contraction under all models. Even under the high-fertility scenario, total population falls below current levels, while the low-fertility variant signals a dramatic demographic decline of over 38%. These projections underscore an alarming convergence: natural population growth is negative across all forecasted decades, driven by persistently low fertility and rising mortality. The analysis extends to age structure forecasts, predicting a sharp rise in the proportion of elderly (65+), up to 39% in the constant projection, indicating a rapid demographic aging with significant socio-economic implications. The second component analyses fertility, mortality, and life expectancy through disaggregated scenarios. Fertility projections reflect deeply entrenched reproductive patterns: even modest assumptions (medium variant) suggest fertility will remain below replacement level. Mortality projections, on the other hand, posit a gradual increase in life expectancy for both genders, mirroring Western European trends. These forecasts point toward an extended phase of demographic transition characterized by shrinking youth cohorts and expanding elderly populations, structural shifts that will reshape labour markets, pension systems, and healthcare demands. A pivotal section of the chapter is devoted to emigration forecasting, where the dynamics of out-migration and potential return flows are mapped in relation to North Macedonia's prospective EU accession. Drawing from comparative experiences of Central and Eastern European states, the chapter projects a continued intensification of emigration until 2030, followed by a gradual stabilization and eventual shift to net immigration by 2050. These forward-looking projections are anchored in realistic assumptions about economic convergence, labour demand, and demographic pressures. The final part of the chapter turns

to international policy case studies on return migration, with detailed attention to countries like Poland, Turkey, and several EU member states. These comparative examples are not merely descriptive but analytically integrated: they illuminate policy instruments ranging from fiscal incentives, reintegration programs, diaspora engagement strategies to targeted interventions for professional returnees, digital outreach campaigns and regional coordination mechanisms.

Chapter seven concludes the book not merely as a summary of previous findings but as a critical interpretive lens that synthesizes historical depth with forward-looking recommendations on the phenomenon of Albanian emigration from North Macedonia and the wider Western Balkans. It shifts from empirical exposition to evaluative and normative analysis, aiming to interrogate structural injustices, reinterpret conventional development narratives, and chart policy pathways for addressing entrenched demographic and socio-economic vulnerabilities. At its core, the chapter problematizes the orthodox development-migration equation, the notion that remittances and labour outflows are unilaterally beneficial for sending countries. While acknowledging short-term benefits such as reduced unemployment and increased household consumption, the chapter forcefully argues that these are illusory gains in the absence of deep structural transformation. The authors critique the failure of Balkan states to convert migration flows into sustained development through productive investment or institutional reform. Remittances, it contends, largely finance consumption and real estate, rather than innovation, employment generation, or industrial diversification. A central policy implication, delivered with critical clarity, is that economic underdevelopment in Albanian-majority regions is not an accident of geography but a consequence of historical marginalization and state neglect. The chapter highlights the disproportionality in infrastructure investment, labour productivity, and access to education and healthcare across regions in North Macedonia. It critiques the failure of national development frameworks to incorporate a territorial equity perspective, warning that such neglect not only fuels migration but also reinforces inter-ethnic disparities and political disaffection. Historically, the chapter performs an indispensable function by revisiting episodes of forced displacement, colonization, and demographic engineering against Albanians in the former Yugoslavia. These are not presented

as digressions, but as the structural antecedents to contemporary patterns of exclusion. This longue durée perspective strengthens the chapter's normative argument: without a reckoning with past injustices and their institutional residues, current policy interventions will remain superficial and ineffective. Most importantly, this final chapter advances a set of explicit policy recommendations that shift the discussion from diagnosis to actionable transformation. It emphasizes the need for targeted regional investment strategies in economically depressed areas such as Pollog, the Northeastern, and Southwestern regions. It also calls for diaspora engagement policies that extend beyond remittance capture to promote circular migration and capital investment. Additionally, the chapter highlights the importance of implementing anti-discrimination safeguards in public administration and education, particularly in historically marginalized communities. In its final assessment, the chapter challenges policymakers to abandon minimalist, reactive approaches to migration and instead adopt a structural vision of equity-led development. It calls for a break from clientelist and ethnocentric governance paradigms, proposing instead a participatory and inclusive model grounded in social justice and territorial cohesion. This final chapter serves not only as the conclusion of the book but also as its intellectual apex. It transforms empirical findings into normative critique and policy vision, situating Albanian emigration as a barometer of state failure and an invitation to reimagine post-socialist development through the lens of equity, historical accountability, and integrated migration strategy.

While "*Albanian emigrations and their effects on demographic and socio-economic developments in North Macedonia*" stands as a groundbreaking and timely contribution to the study of migration in the Western Balkans, certain limitations merit acknowledgment. The scope of the empirical survey is confined to emigrants from the southwestern region of North Macedonia, which, while methodologically sound, inevitably narrows the representativeness of its conclusions across the broader Albanian population in the country. Moreover, the book occasionally departs from the stylistic conventions of scholarly writing, employing language that is more direct and assertive than typically found in academic discourse. Additionally, the treatment of some themes appears thematically dispersed, with overlapping discussions across chapters that might have benefitted

from tighter editorial structuring and conceptual synthesis. While the application of advanced econometric techniques is commendable, further elaboration on methodological choices and potential limitations would have strengthened the empirical foundation of the study. Despite these critiques, the book must be recognized for what it is: one of the first, and arguably the most comprehensive, attempts to systematically document and analyse Albanian migration from a socio-economic and historical perspective within the North Macedonian context. Its blend of statistical inquiry, historical reconstruction, and policy advocacy represents a pioneering scholarly intervention. By bringing visibility to a long-neglected subject, it not only fills a significant void in the regional migration literature but also offers a compelling call to action for policymakers and academics alike. For all its imperfections, the book's value lies in its audacity to confront uncomfortable truths and its sincere commitment to situating Albanian emigration within the broader debates on justice, development, and demographic sustainability in the Western Balkans.
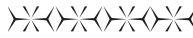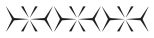
Costas Lapavitsas and Pınar Çakıroğlu, *Capitalism in the Ottoman Balkans: Industrialisation and Modernity in Macedonia*

Bloomsbury Publishing, 2019, pp.312.

Reviewer: Mustafa Sacid Öztürk

The work by Costas Lapavitsas and Pınar Çakıroğlu, *Capitalism in the Ottoman Balkans: Industrialisation and Modernity in Macedonia,* emerges as a study that examines the capitalist transformation in the Balkans during the late Ottoman Empire, specifically through the lens of industrialization and modernization practices in the Macedonian region (Lapavitsas and Çakıroğlu, 2019, 1-4). This book, published by I.B. Tauris in 2019, focuses on analyses related to Ottoman economic history and, more broadly, the historical development processes of capitalism. The book particularly concentrates on the development of the

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textile industry around Thessaloniki and Mount Vermion (the region including the towns of Karaferye, Naoussa/Ağustos, and Edhessa/Vodina) (pp. 29-34 and Chapter 6), scrutinizing the local dynamics of this process, the social structure, intra-communal dynamics (Chapter 8), and the role of the Ottoman state in the process (Chapter 7).

Lapavitsas and Çakıroğlu structure their work around nine main chapters. The fundamental thesis of the book is that in Macedonia, particularly in the Mount Vermion region west of Thessaloniki, a spontaneous industrialization process, led by specific capitalist individuals and groups, took place from the latter half of the 19th century until 1912 (pp. 2-3). This industrialization predominantly began in the field of cotton spinning and was nurtured by local conditions, global trends, and supportive policies of the Ottoman state (p. 3). The authors emphasize that this process challenges the "decline" narratives of the Ottoman Empire and signifies a noteworthy economic dynamism in the Empire's final period (pp. 19-20).

One of the significant arguments of the work is the observation that while industrialization emerged in the mountainous parts of an agricultural region, agriculture itself did not undergo a capitalist transformation and was dominated by small landholdings and large farms based on sharecropping (p. 3 and Chapter 4). This situation indicates that traces of agrarian capitalism were not found in Ottoman Macedonia. It is stated that the capitalists who pioneered industrialization were mostly merchants who had accumulated capital through trade in locally produced woolen fabrics, and these merchant-capitalists also controlled a large part of woolen fabric production. It is also a notable finding that although many of these merchants and industrialists acquired significant lands on the Macedonian plain, they did not transform these lands into capitalist farms (p. 3 and Chapter 5).

The book also sheds light on the differences in capitalist development between the predominantly Christian Greek industrialists in Mount Vermion and the dominant Jewish merchants and industrialists in Thessaloniki (pp. 4, 130-137). These differences partly stem from the distinct social origins, internal organizations, and cultural perspectives of the Christian Greek and Jewish communities

(pp. 4, 207-209). The framework in which industrialization occurred reflects a long history of inter-communal separation and discrimination within the Ottoman Empire (p. 4) and also sowed the seeds of violent nationalism (pp. 235-255).

While analyzing Ottoman capitalism, the authors engage in a dialogue with existing theoretical frameworks such as Max Weber's "patrimonialism" (pp. 24-25), the Marxist "Asiatic mode of production" (p. 25), or Wallerstein's "World-Systems Analysis" (pp. 25-26), but they also point out the limitations of these approaches in the Ottoman context. Instead, they prefer to focus on the internal processes of Ottoman society, particularly the roles of the state, communities, and religion in the emergence of Ottoman capitalism (pp. 24-29). The book also elaborately discusses the Ottoman State's efforts to create a framework for industrialization (Chapter 7). However, despite all these developments, the authors underline the "precarious" nature of this capitalism (Chapter 9).

Lapavitsas and Çakıroğlu base their arguments on primary sources such as the Ottoman Archives of the Prime Ministry (*BOA*) and the Thessaloniki Provincial Yearbooks (*Salnameler*), as well as reports from Greek state officials of the period and field studies. The use of Ottoman archival sources, along with the inclusion of Greek sources and the role of field studies in the construction of the work, not only strengthens the book's empirical foundation but also enhances its contribution to studies of both the period and the region.

Capitalism in the Ottoman Balkans is important for filling a significant gap in Ottoman economic history and European economic development studies. One of the strengths of the work is its focus on provincial industrialization in Mount Vermion, a region generally neglected in the literature (pp. 2-4). This micro-historical approach reveals the complexity and regional variations of Ottoman modernization and capitalist transformation. As the authors state, an analysis of the economic history of Mount Vermion has the potential to present the economic, social, political, and historical characteristics of Ottoman capitalism in a concentrated manner (p. 4).

Another important contribution of the book to the literature is its reliance on primary sources, especially Ottoman archival documents and provincial yearbooks. The fact that these sources, as emphasized by the authors, had not been

previously researched in such depth from the perspective of Macedonian industrialization (pp. 34-35) adds a unique empirical richness to the work. Using these sources, the authors meticulously reveal the administrative structures in the province of Thessaloniki (Chapter 3), population dynamics (pp. 51-61), the structure of farm agriculture (Chapter 4), commercial networks (Chapter 5), and the establishment and development processes of industrial enterprises (especially textiles) (Chapter 6).

The work offers a noteworthy perspective at the macro level with reference to the Ottoman State's role in the process, particularly attempting to develop an antithesis to stereotypical narratives such as "decline" and "sick man" concerning the economic vitality and modernization efforts in the late Ottoman Empire. By rejecting the classic "decline" paradigm (pp. 19-24), it shows that the state, on the contrary, especially in the post-Tanzimat period, played a complex role as an actor that encouraged, regulated, and provided a framework for industrialization (Chapter 7). The state's efforts to encourage private industrial investments, support domestic producers through customs duties and privileges, and establish regular relations with industrialists are explained with examples (pp. 182-200). Thus, the books attempts to show that industrialization did not solely follow a path unique to Western Europe but could take original forms in different historical and social contexts.

Lapavitsas and Çakıroğlu's emphasis on communal (especially Christian Greek and Jewish) dynamics and the economic roles of these communities is also one of the work's strengths (pp. 27-28, 207-217). The competition and different development paths between the Jewish bourgeoisie in Thessaloniki and the Christian Greek entrepreneurs in Mount Vermion (pp. 130-137) are critically important for understanding the multi-layered structure of Ottoman society and its economic consequences. The impact of ethnic and religious identities on capital accumulation, entrepreneurial practices, and relations with the state is also carefully analyzed in the work (pp. 209-217).

On the other hand, the book also offers an important case study for ongoing debates on theories of transition to capitalism. Significant inferences are made through the Macedonian example on issues such as the evolution of merchant

capitalism into industrial capitalism (Chapter 5), industrialization in the absence of agrarian capitalism (pp. 94-95), the role of the state (Chapter 7), and the dynamics of capitalist development in peripheral economies.

Looking at its engagement with the literature, it can be said that the work considers the existing literature in the field of Ottoman economic history and tries to develop this literature. Although prominent economic historians like Donald Quataert had previously drawn attention to developments in the Mount Vermion region, Lapavitsas and Çakıroğlu's study can be described as the first monograph to comprehensively address this topic. Furthermore, it can be said that the book adds an important case study specific to Macedonia to the general assessments made by figures such as Şevket Pamuk and Halil İnalcık on the Ottoman economy and industry.

Capitalism in the Ottoman Balkans has the potential to open new windows for future research on topics such as Ottoman provincial economies, inter-communal economic relations, the role of local elites, and state-capital relations. It once again emphasizes the importance of micro-historical studies and the use of local sources (pp. 34-37).

Capitalism in the Ottoman Balkans also presents some debatable points and areas that could be further deepened. Although the authors present the Mount Vermion case as an example that condenses the characteristics of late Ottoman capitalism, the question arises as to what extent this specified process can be generalized to other Ottoman regions. It remains somewhat unclear whether the authors intend for the book's focus on the unique conditions in Macedonia to form a basis for broader discourses on other Balkan industrial centers or industrialization attempts in Anatolia. The need for more comprehensive comparative analyses in this direction remains.

The authors draw attention to the "precarious" nature of this capitalism. Beyond the impending collapse of the Empire, there seems to be a need to further emphasize the deeper structural reasons for this precariousness – for example, the long-term effects of the agricultural sector's failure to transform (pp. 259-260), the shallowness of capital markets, or technological dependence (p. 260). While the book emphasizes local dynamics and "internal resources", the extent

to which European imperialism and global economic powers shaped this form of capitalism could also have been discussed **in greater detail, even though** the authors acknowledge that this influence determined its parameters (pp. 23-24).

Providing more information about other industrial sectors in Macedonia (e.g., food processing, mining, etc.) besides the textile industry, on which the work focuses, could have enriched the general picture of industrialization in the region. However, the authors' preference for presenting an in-depth analysis by focusing on the textile sector is understandable, as textiles, according to the authors, were the locomotive of industrialization in the region.

Costas Lapavitsas and Pınar Çakıroğlu's work, *Capitalism in the Ottoman Balkans: Industrialisation and Modernity in Macedonia,* makes a significant contribution to Ottoman economic history and studies of capitalist development by centering on the industrialization process in Ottoman Macedonia, particularly the under-discussed Mount Vermion region in the literature. The work seeks to reveal the economic dynamism in the late Ottoman period, the complex role of the state, and the effects of socio-communal structures on economic transformation.

It can be said that the book will be one of the reference sources for Ottoman economic historians, economic historians in general, Balkan studies specialists, and academics and students interested in the historical development processes of capitalism. Its conclusions and the methodological approach it presents have the potential to enrich discussions in its field and open up avenues for new research.

Bujamin Bela and Ü. Serdar Serdaroğlu,
Balkan Economies Structure, Transition and Transformation of North Macedonia, 1991-2024
IDEFE, 2025, pp.322.

Reviewer: Mimoza Arifi Iseni

This book provides a comprehensive analysis of the economic structure, transition processes and the development of the transformation of North Macedonia. By placing the situation of North Macedonia in the regional trends (Balkan level), each chapter offers analysis of history, policy makers and practitioners interested in the dynamic economic landscape of Southeast Europe. The economic trajectory of the Balkan regional economy is shaped by a complex combination of history, politics, technology and institutional evolution. Among these

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changes, North Macedonia, as a case of possible transformation - haunted by deep structural changes, and European integration ambitions.

This book is structured in ten chapters. The first chapter "Historical Context of the North Macedonian Economy: Structure, Institutions and Economic Philosophy from the Ottoman Empire and Yugoslavia", examines the economic structure in historical and current dimensions, analyzing contributions, Yugoslav socialist industrialism and their impact on economic shaping. The author uses the comparative analysis of the historical and contemporary period.

The second chapter "Early Economic Policies, Post-Independence Challenges, and Macroeconomic Stability in the North Macedonia", delves into the transition period emphasizing: foreign investments, monetary and fiscal policy reforms, public finances, regulatory changes and the transition from state ownership to private enterprise reducing unemployment. North Macedonia began a challenging journey from a centrally planned (socialist, centralized) economy to a market-oriented system in the early 1990s since the breakup of Yugoslavia.

The third chapter "Public debt of the Republic of North Macedonia - Specifics and trends", is oriented around the comprehensive examination of the public debt landscape in the Republic of North Macedonia, describing the historical development of public debt in the country, tracing the main stages of debt accumulation and highlighting the political and economic events that have shaped (defined) the borrowing patterns. In this chapter, is presented the evolution of public debt from 1992 to 2023, examining the risks associated with public borrowing and the implications that fiscal policies bring.

The fourth chapter entitled "The role of inflation in economic growth, with special emphasis on the Republic of North Macedonia" – is well structured, starting with a literature review that provides context through classical and modern economic theories.

This chapter provides a historical inflation trends in North Macedonia and assessing their implications for GDP growth, employment and investment. The author combines and effectively presents a complete and detailed analysis of the role of inflation in shaping economic growth in North Macedonia. The

importance between the short-term and long-term effects of inflation is described, especially in developing economies, the case of our country but also warns of the destabilizing effects of high inflation rates or unstable inflation rates.

The in-depth analysis is especially valuable for policy makers, economists interested in economies in transition and represents a basis for future studies.

The fifth chapter, "The Impact of FDI on Economic Growth and Development in North Macedonia since 1991", since the independence of North Macedonia in 1991, this chapter presents a comprehensive and well-structured analysis of the role played by foreign direct investment (FDI) in shaping the economic trajectory. The author contextualizes the chronological approach, which allows readers to understand the changing patterns of direct investment inflows (FDI) in correlation with the country's major political and economic developments. A significant part of the chapter is devoted to the identification and examination of the challenges faced by the economy of North Macedonia. These include domestic political uncertainties, sluggish EU economic activity and global trade volatility, which may adversely affect foreign trade and investment.

In conclusion, the chapter offers a series of policy recommendations aimed at fostering economic growth and resilience. These include accelerating EU accession reforms, implementing market-based support mechanisms for renewable energy and strengthening the support system for energy efficiency in buildings.

Chapter six, "Analysis of Economic Crises and Responses: Studying North Macedonia's Approach to Handling Economic Crises", this chapter systematically examines historical and contemporary crisis periods, including the 2008 global financial crisis and regional economic concerns, to highlight how fiscal and monetary policies have been adapted to the RNM. What distinguishes this chapter from others is its balance between macroeconomic analysis and policy criticism, making it both academically and practically relevant. It provides valuable information not only for researchers of Southeast European economies, but also for policy makers in small and open economies facing external shocks.

The seventh chapter, "SMEs, Entrepreneurship and Economic Development in North Macedonia: Insights from the 'Never-Ending'" Transition Period," examines the role of small and medium-sized enterprises (SMEs) in North Macedonia. SMEs serve as a backbone of the country's economy, promoting job creation, innovation and diversification.

This chapter explores the entrepreneurial environment, analyzing the regulatory frameworks, financial constraints and institutional support mechanisms that influence the growth of SMEs. The author assesses the impact of the informal economy and discusses how North Macedonia can harness entrepreneurship as a key driver of the country's sustainability and development. Drawing on empirical data, it analyzes in detail how entrepreneurship has emerged as a response and a driver of transition during the country's transition from a socialist economy to a market-based economy. What distinguishes this chapter is the combination of outstanding contributions in both academic and regionally specific fields and is a source of valuable for researchers, policy makers and practitioners interested in SME development.

Chapter eight, "Human influences on economic change: labor productivity in North Macedonia (1991–2024)", presents a comprehensive and detailed analysis of several decades of economic transformation in North Macedonia. This chapter draws on historical data and comparative regional analysis to assess the effectiveness of economic strategies and their consequences for workers, productivity and overall development of the country. One of the main points of the chapter delves into the real-world implications of economic change on working conditions, wages, job security and social inequality.

The analysis also explores technological modernization, EU membership aspirations and education reform on workforce skills and productivity growth. This chapter represents a valuable contribution to the economic literature and the economic development of the Balkan countries. Apart from the academic field, it will especially be useful for policymakers, economists and researchers interested in the long-term effects of structural reforms on labor productivity and human development in transition economies.

The ninth chapter, "Service Sector Surge: A New Economic Frontier Analyses of the Information and Communication Technology (ICT) Sector in the North Macedonia", provides a compelling and timely exploration of North Macedonia's developing Information and Communication Technology (ICT) sector, framing it as a key component in the country's shift to a knowledge-based service economy. The chapter stands out for its in-depth analysis of how the ICT sector has evolved to become one of the most dynamic drivers of economic transformation in North Macedonia. The chapter examines key trends in digital infrastructure, software development and technology. The author places ICT within a wider regional and global context, noting how globalization, digitization and the EU integration process have influenced this sector to grow.

The tenth chapter, "Current trends, challenges and opportunities: predicting future economic trends and identifying potential challenges and opportunities in relations with North Macedonia", This chapter provides insight into prevailing trends, emerging challenges and opportunities. The author deftly navigates the complexities of the country's economic landscape, drawing on a mix of empirical data, policy assessments and sectoral analysis to present an important perspective. The author emphasizes the need for comprehensive reforms in the labor market, social protection and employment to address these challenges effectively.