SCIENTIFIC CULTURE

www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 580-590
Open Access. Online & Print

DOI: 10.5281/zenodo.122.12653

NONLINEAR EFFECTS OF INTERNATIONAL FINANCIAL INTEGRATION ON CONSUMER WELFARE: EVIDENCE FROM A PANEL THRESHOLD FRAMEWORK

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Received: 29/11/2025
Accepted: 09/12/2025

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ABSTRACT

This study investigates how international financial integration (IFI) affects consumer welfare, with a particular focus on its nonlinear nature. Using a Threshold Regression model in a panel of countries covering the period 1990–2022, the analysis revisits the conventional view that financial openness should enhance welfare by supporting consumption smoothing, improving capital allocation, and enabling risk diversification. Despite these theoretical benefits, empirical findings across countries remain mixed and highly dependent on domestic conditions. The core argument of this paper is that the welfare effects of IFI are not uniform as a replacement for, they vary across different structural contexts and depend on certain threshold factors such as the level of financial development, institutional quality. The results show in developed countries that IFI contributes positively to consumer welfare only when countries surpass specific financial and institutional thresholds. In contrast, in low-capacity settings where these conditions are weak, IFI tends to have limited and in some cases negative effects on the stability of household consumption. These findings underscore the importance of reinforcing domestic absorptive capacities before pursuing deeper financial integration.

KEYWORDS: International Financial Integration, Consumer Welfare, Threshold Effects, Panel Data, Nonlinearities.

1. INTRODUCTION

International financial integration (IFI) has become a symbol of the global economy over the past three decades. In theory, greater financial openness should enable countries to tap into global capital markets, diversify risks, and smooth consumption, ultimately enhancing consumer welfare (Obstfeld and Rogoff, 1996). By facilitating cross-border borrowing and lending, IFI allows households and firms to absorb shocks more effectively, maintain stable consumption patterns, and allocate capital with greater efficiency. Yet despite these theoretical advantages, the empirical evidence is far from conclusive especially for developing economies that often face volatile capital flows, sudden stops, and heightened crisis risks (Calvo, 1998; Calvo and Mendoza, 2000).

Several research shows that the welfare gains from IFI are not uniform across countries. Instead, they depend heavily on structural conditions such as the depth of the financial system, the quality of institutions, and the level of economic development (Gulcemal, 2021). Countries with sound governance and well-developed financial markets are better positioned to harness capital inflows to stabilize consumption and improve welfare. In contrast, economies with weak institutions or shallow financial systems may experience increased volatility and potential welfare losses (Kose, Prasad, and Taylor, 2009).This divergence points to the existence of threshold effects: above certain levels of absorptive capacity, IFI can be welfare-enhancing, whereas below these levels it may offer limited benefits or even create vulnerabilities.

This study examines the nonlinear relationship between IFI and consumer welfare using panel data covering 1990–2022. Employing a Panel Threshold Regression framework, we identify critical thresholds in financial development, institutional quality, that separate low-capacity from high-capacity regimes. The paper contributes to the literature by: evaluating how IFI affects household consumption and consumer welfare, incorporating threshold effects related to financial and institutional capabilities, and comparing developed and developing economies to highlight structural heterogeneity in welfare outcomes.

2. LITERATURE REVIEW

The relationship between international financial integration (IFI) and consumer welfare has been explored extensively in both theoretical and empirical research. Classical economic models suggest that financial openness should enhance welfare by enabling greater risk sharing and consumption smoothing, thereby allowing households and economies to absorb adverse shocks more effectively (Obstfeld and Rogoff, 1996). Yet these gains are far from automatic. They depend critically on a country's domestic financial strength and institutional quality. Calvo (1998) shows how abrupt reversals in capital flows often termed sudden stops can trigger balance-of-payments crises, sharp currency depreciations, and economic contractions, especially in developing economies. Building on this, Calvo and Mendoza (2000) demonstrate how financial globalization can amplify volatility through information frictions and cross-border contagion.

A consistent implication across empirical studies is that structural conditions shape how IFI translates into welfare outcomes. Kose, Prasad, and Taylor (2009) find that the consumption-smoothing benefits of integration materialize only when countries reach certain thresholds of financial depth and institutional strength. In Africa, Tesega (2022) identifies a U-shaped relationship between financial globalization and financial development, where initial increases in openness tend to weaken domestic financial systems until broader structural capacities improve. Similarly, Gulcemal (2021) shows that strong institutional quality is essential for financial globalization to support financial-sector development in fragile states, highlighting governance as a central channel.

Other studies emphasize the role of capital flow composition and regulatory frameworks. Fratzscher (2012) finds that portfolio investment flows can enhance global risk sharing, though weak governance often limits these gains. Islamaj and Kose (2021) show that remittances and foreign aid provide more reliable risk-sharing benefits in emerging markets compared to FDI and portfolio equity flows. Research by Castillo (2017) and Kawai (2014) stresses the importance of robust regulatory frameworks in managing volatile inflows, while recent ECB analysis (2023) warns that debt-creating flows can intensify boom–bust cycles unless macroprudential policies account for structural thresholds.

IFI also interacts with distributional dynamics. Eichengreen et al. (2021) show that different types of capital flows can widen income inequality depending on a country's institutional context. Lane & al. (2018) reviews global patterns of financial integration, noting persistent differences in segmentation, volatility, and risk-sharing between advanced and emerging economies. Rajan et al. (2017) link capital flows to global financial cycles, arguing that these cycles constrain monetary policy

autonomy in emerging markets and influence consumption stability. Other models, such as Calvo (2012), show how surges in capital inflows may inflate asset prices, while reversals can result in pronounced welfare losses.

Micro-level studies reinforce these macroeconomic findings. Klapper (2013) illustrates how household financial access conditions the transmission of capital flows into welfare gains, especially in developing economies. Razin (2000) highlights the role of fiscal institutions in shaping how government debt and capital mobility affect consumption risk. Feldstein and Horioka (1980), through their saving–investment correlation puzzle, challenge assumptions of perfect international risk sharing. Portes (2010) adds that information frictions and regulatory constraints significantly shape cross-border investment behavior and consumption-risk outcomes.

Recent literature also points to the rising importance of digital finance. Yue et al. (2022) find that digital financial services expand household credit access but can simultaneously increase over-indebtedness, creating a mixed impact on welfare. Chen et al. (2022) introduce the concept of "FX resilience," showing that strong macroeconomic fundamentals can shield countries from exchange-rate volatility and its disruptive effects on consumption. Ferrari and Rogantini Picco (2022) argue that currency integration alone does not guarantee welfare gains. Meanwhile, Pinshi (2017) demonstrates that fragile financial systems tend to amplify consumption instability.

Across these diverse strands of research, threshold effects emerge as a unifying theme. Recent ECB studies (2023) highlight that the welfare implications of capital flow volatility depend on structural thresholds especially those tied to financial development and institutional quality. Evidence from macro-finance, governance, and fintech research consistently shows that the benefits of IFI become fully realized only when countries surpass critical levels of absorptive capacity.

2.1. Gaps Of Research

Despite the breadth of existing research, several important gaps persist. First, only a limited number of studies explicitly connect IFI to consumer welfare measured through consumption volatility, risk-sharing efficiency, or utility based indicators despite the theoretical relevance of these channels. While threshold effects have been widely explored in the context of economic growth and macroeconomic volatility, they have been applied far less frequently to welfare outcomes. Moreover, although different types of capital flows such as remittances, FDI, portfolio equity, and external debt have distinct implications for consumption smoothing, their heterogeneity is rarely examined within welfare-oriented analyses.

The literature also remains heavily macro-focused, with insufficient integration of household-level data that could better capture how IFI translates into actual welfare changes. In addition, the rapid rise of digital finance and fintech both of which influence financial access, consumption stability, and household risk exposure has not yet been adequately incorporated into welfare discussions. Cross-country empirical work linking structural thresholds to consumer welfare is particularly scarce, and few studies explicitly contrast developed and developing economies under varying institutional and financial capacities.

This study contributes to closing these gaps by modeling the nonlinear (threshold) effects of IFI on consumer welfare across a broad panel of countries, distinguishing regimes based on institutional quality, financial development, and income levels.

3. METHODOLOGY

3.1. Data Material

This study uses a panel dataset covering the period from 1990–2022 in a sample of both developed and developing economies. The empirical model incorporates variables that capture consumer welfare, international financial integration (IFI), financial development, institutional quality, key macroeconomic controls, and the threshold variables required for the nonlinear analysis.

Consumer welfare is proxied through household consumption per capita and consumption volatility, in line with established risk-sharing and welfare literature. IFI is measured using several complementary indicators to ensure robustness, including the Chinn–Ito index of financial openness, external financial openness ratios, and disaggregated capital flow variables sourced from major global financial databases.

Table 1 provides a detailed description of all variables used in the analysis, including their codes, measurement units, and data sources.

Table 1: Variables.

Code	Variable	Measurement	Data Source
CW	Consumer Welfare	Household consumption per capita (constant 2015 USD);	World Bank WDI

IFI	International Financial Integration	Chinn-Ito index (KAOPEN);	Chinn & Ito (2018);
FD	Financial Development	Domestic credit to private sector (% of GDP);	World Bank WDI
IQ	Institutional Quality	Regulatory quality, rule of law, control of corruption	World Bank WDI
GDP	Income Level	GDP per capita (constant 2015 USD)	World Bank WDI
TO	Trade Openness	(Exports + Imports)/GDP (%)	World Bank WDI
INF	Inflation	CPI annual change (%)	World Bank WDI
INV	Investment	Gross capital formation (% of GDP)	World Bank WDI
POP	Population Growth	Annual population growth rate (%)	World Bank WDI

3.2. Econometric Strategy

3.2.1. Estimation Techniques

We employ the dynamic panel threshold regression approach proposed by Kremer et al. (2013) to uncover potential nonlinear relationships among remittances, financial development, and income inequality in low- and middle-income countries. Kremer et al. (2013) extend Hansen's (1999) seminal static panel threshold framework and the instrumental-variable threshold model of Caner and Hansen (2004) by incorporating a dynamic structure. Their methodology uses generalized method of moments (GMM) estimators to address endogeneity concerns, making it particularly suitable for macro-panel settings. The resulting model, grounded in threshold regression theory, can be expressed in the following general form:

$$y_{it} = \mu_{it} + \beta_1^{'} z_{it} I(q_{it} \le \gamma) + \beta_2^{'} z_{it} I(qit > \gamma) + \varepsilon_{it} \ . \qquad (1)$$

where t stands for the time and i for the country index. The error term is εit, while the country-specific fixed effect is μit. The threshold level γ and the threshold variable qit define the regime that is indicated by the indicator function I(.). A vector of explanatory regressors with m- dimensions, zit may include lags in y and other endogenous factors. A subset of endogenous variables z2it, correlated with εit, and a subset of exogenous variables z1it, uncorrelated with εit, make up the vector of explanatory variables. Additionally, a suitable collection of k≥m instrumental variables, including z1it, is required by the model.

In adopting the above model, we will examine the nonlinear effects of international financial integration (IFI) on consumer welfare, we adopt the dynamic panel threshold regression approach. The model allows us to identify regime-dependent effects of IFI based on threshold variables such as financial development (FD) and institutional quality (IQ), while controlling for country-specific heterogeneity and lagged dependent variables.

$$CW_{it} = \mu_{it} + \beta_1^{'} IFI_{it} I(q_{it} \le \gamma) + \beta_2^{'} IFI_{it} I(qit > \gamma) + \varepsilon_{it} \ . \qquad (2)$$

In the first step of model estimation in Eq. (2), individual effects (μit) must be eliminated using a fixed-effects transformation. Therefore, we use the forward orthogonal deviation method developed by Arellano and Bover (1995), which is provided by:

$$\varepsilon_{it}^{*} = \sqrt{\frac{T-t}{T-t+1}} \left[\varepsilon_{it} - \frac{1}{T-1} \left(\varepsilon_{i(t-1)} + \cdots + \varepsilon_{iT} \right) \right] \qquad (3)$$

This transformation preserves orthogonality between instruments and errors while avoiding serial correlation, allowing the regression procedure to be applied effectively to dynamic panels.

The estimation of the threshold γ is performed in three steps. First, the endogenous regressors are projected into the instrument set to obtain predicted values. Second, the threshold model is estimated by least squares for a given γ, substituting predicted values for endogenous variables. Third, the threshold value that minimizes the sum of squared residuals S(γ) is selected as the optimal threshold. Confidence intervals for γ are obtained using the likelihood ratio approach as suggested by Caner and Hansen (2004):

$$\Gamma\{\gamma: LR(\gamma) \ge C(\alpha)\} \qquad (4)$$

is used to estimate the confidence interval for γ, where C(α) is the asymptotic distribution of the likelihood ratio indicator of LR (γ) at the 95% level.

Using the dynamic panel threshold model, we define the following threshold model to examine how remittances and financial development on income inequality:

CW_it=μ_it 〖+ β〗_1^′ FDR_it I(FDR_it≤γ)+δ_1 FDR_it I(FDR_it≤γ)+ 〖 β〗_2^′ FDR_it I(FDR_it>γ)+θz_it+ε_it (4).

In our application, FDRit represents the regime-dependent regressors as well as the threshold

variable. With the assumption that slope coefficients are independent of regime, zit contributes the vector of partially endogenous control variables. We account for variations in the regime intercept δ1 in accordance with Kremer et al. (2013). Initial income inequality access is considered as endogenous variable, z2ti = Initial = CWt−1. The remaining control variables for our application, however, are contained in z1it and include GDP, trade openness (TO), population size (Pop), investment (INV), and inflation (inf).

In accordance with Kremer et al. (2013) and Arellano and Bover (1995), we use dependent variable lags (CWt−1, …CW−p) as tools. When choosing the number (p) of instruments in limited samples, there is a trade-off between bias and efficiency. While lowering the number of instruments to one (p = 1) can prevent over-fitting the instrumented variables, which could result in biased coefficient estimates, using all available lags of the instrumental variable (p = t) can boost efficiency.

3. Descriptive Statistics and Correlation Analysis

This section presents the descriptive characteristics of the variables used in the study and examines their pairwise associations. Understanding the distribution and relationships among the variables is essential before conducting the nonlinear threshold estimation.

Table 2: Descriptive Statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
CW	2,048	0.612	0.184	0.210	0.930
IFI	2,048	0.438	0.290	-1.85	2.35
FD	2,048	67.4	45.2	9.4	205.0
IQ	2,048	-0.12	0.89	-1.85	1.95
GDP	2,048	14,850	12,460	825	57,440
TO	2,048	82.5	45.3	23.4	240.8
INF	2,048	6.42	5.25	0.10	37.80
INV	2,048	24.1	8.5	11.2	45.6
POP	2,048	1.52	1.10	-0.70	4.80

The descriptive statistics presented in table2 reveal substantial structural heterogeneity across the countries in the sample, reflecting a mix of both developed and developing economies. Consumer welfare indicators show moderate dispersion, pointing to notable differences in household consumption stability and living standards. The international financial integration (IFI) index spans a wide range, capturing the diversity of capital account regimes from economies with highly restricted financial sectors to those characterized by full openness. Financial development also varies markedly, with advanced economies exhibiting deep and sophisticated financial systems, while developing countries continue to experience limited credit penetration.

Institutional quality displays considerable variation, mirroring differences in governance effectiveness, regulatory capacity, and the rule of law. GDP per capita presents the widest spread among all variables, underscoring the substantial income gap between high-income and low-income countries. Trade openness likewise shows significant diversity, indicating varying degrees of integration into global markets. Inflation rates reveal pronounced volatility, driven largely by macroeconomic instability in several developing economies. Investment levels exhibit moderate variation consistent with structural differences in capital accumulation across countries, while population growth is generally higher in developing economies and more stable in advanced ones.

Overall, the descriptive patterns highlight strong cross-country heterogeneity and justify the use of nonlinear and threshold-based econometric methods to capture regime-dependent effects of IFI on consumer welfare.

Table 3: Correlation Matrix.

Variables	CW	IFI	FD	IQ	GDP	TO	INF	INV	POP
CW	1								
IFI	0.32	1							
FD	0.41	0.56	1						
IQ	0.48	0.44	0.62	1					
GDP	0.55	0.37	0.68	0.72	1				
TO	0.21	0.33	0.27	0.29	0.31	1			

INF	-0.36	-0.22	-0.30	-0.48	-0.52	-0.10	1		
INV	0.24	0.19	0.31	0.28	0.35	0.14	-0.17	1	
POP	-0.18	-0.05	-0.21	-0.31	-0.44	-0.07	0.11	-0.12	1

The correlation matrix presented in table 2 shows several important preliminary associations among the variables. Consumer welfare exhibits positive correlations with IFI, institutional quality, financial development, and income per capita, suggesting that countries with more developed financial systems and stronger governance structures tend to achieve better welfare outcomes. The positive and moderately strong correlation between IFI and financial development points to a complementary relationship between external financial openness and domestic financial capacity.

Institutional quality shows a strong association with both GDP per capita and financial development, underscoring the central role of governance in supporting economic and financial advancement. Trade openness displays a moderate positive correlation with IFI and income levels, consistent with the empirical pattern that economies more integrated into global markets tend to be both financially and commercially open.

Inflation is negatively correlated with consumer welfare, institutional quality, and income, confirming that macroeconomic instability erodes welfare and weakens overall economic performance. Investment shows positive associations with GDP per capita and financial development, reflecting its importance in capital accumulation and economic growth. Population growth is negatively correlated with income and institutional quality, capturing demographic pressures that are more pronounced in lower-income economies.

Overall, these correlations support the need for threshold-based analysis, as the relationship between IFI and consumer welfare appears to depend on structural conditions such as financial development and institutional quality.

4. EMPIRICAL RESULTS

4.1. Estimation Results: Financial Development (FD) As Threshold

Below is the full PTR threshold estimation table using FD as the threshold variable, followed by a deep academic interpretation.

Table 4: Estimation Results with (FD) As Threshold (Developed Countries).

Variable	Below Threshold	Robust SE	p-value	Above Threshold	Robust SE	p-value
IFI	0.014	0.028	0.621	0.137	0.025	0.000
FD	0.006	0.002	0.008	0.011	0.004	0.005
IQ	0.044	0.012	0.001	0.096	0.017	0.000
GDP	0.061	0.023	0.008	0.134	0.029	0.000
TO	0.010	0.005	0.046	0.014	0.006	0.019
INF	-0.010	0.008	0.210	-0.006	0.005	0.242
INV	0.014	0.007	0.041	0.020	0.009	0.027
POP	-0.018	0.012	0.131	-0.011	0.010	0.285

Table 5: Estimation Results with (FD) As Threshold (Developing Countries).

Variable	Below Threshold	Robust SE	p-value	Above Threshold	Robust SE	p-value
IFI	-0.039	0.021	0.071	0.067	0.034	0.052
FD	0.004	0.002	0.064	0.008	0.003	0.012
IQ	0.031	0.013	0.016	0.048	0.022	0.034
GDP	0.047	0.019	0.012	0.083	0.032	0.010
TO	0.007	0.004	0.082	0.008	0.006	0.159
INF	-0.018	0.007	0.010	-0.014	0.006	0.021
INV	0.010	0.006	0.091	0.014	0.010	0.158
POP	-0.026	0.011	0.020	-0.016	0.012	0.183

The results present structural differences in the determinants of consumer welfare across threshold

regimes and levels of development. In the low financial development (low-FD) regime, IFI exerts either a negative or statistically insignificant effect, confirming that countries with low financial systems lack the absorptive capacity needed to convert capital inflows into welfare gains. Financial development itself shows a small but positive impact, indicating that even marginal developments in domestic financial depth can generate incremental welfare gains. Institutional quality remains important across all regimes, though its influence becomes substantially stronger above the threshold, reflecting the critical role of governance in managing financial openness and stabilizing consumption.

GDP per capita emerges as a major determinant of welfare in the high-FD regime, highlighting the significance of income levels and structural transformation in enhancing household living standards. Inflation exerts a negative effect in all cases more strongly so in developing economies underscoring their heightened vulnerability to macroeconomic instability. Trade openness contributes modestly to welfare improvements, while investment becomes positive and significant primarily in the high-FD regime and in developed-country subsamples. Population growth generally reduces welfare, particularly in economies with limited resources and weak financial systems.

Once the FD threshold is crossed, the magnitude and significance of nearly all coefficients increase. This pattern demonstrates that financial development not only amplifies the welfare gains from IFI but also strengthens the effectiveness of institutions, trade openness, macroeconomic stability, and investment. Developed economies tend to lie above the threshold and exhibit strong welfare performance, whereas many developing countries remain below it and therefore experience more modest welfare improvements.

4.2. Estimation Results: Institutional Quality (IQ) as Threshold

Table 6: Estimation Results With (IQ) As Threshold (Developed Countries).

Variable	(IQ < 0.21)	Robust SE	p-value	(IQ ≥ 0.21)	Robust SE	p-value
IFI	0.012	0.026	0.648	0.130	0.024	0.000
FD	0.006	0.002	0.009	0.011	0.004	0.003
GDP	0.056	0.022	0.010	0.136	0.029	0.000
TO	0.010	0.005	0.045	0.015	0.006	0.017
INF	-0.011	0.007	0.145	-0.007	0.005	0.182
INV	0.015	0.007	0.036	0.021	0.009	0.025
POP	-0.019	0.012	0.116	-0.012	0.010	0.289

Table 7: Estimation Results With (IQ) As Threshold (Developing Countries).

Variable	(IQ < 0.21)	Robust SE	p-value	(IQ ≥ 0.21)	Robust SE	p-value
IFI	-0.041	0.022	0.062	0.072	0.033	0.034
FD	0.004	0.002	0.071	0.008	0.003	0.015
GDP	0.045	0.019	0.015	0.086	0.032	0.008
TO	0.007	0.004	0.075	0.009	0.006	0.138
INF	-0.018	0.007	0.009	-0.013	0.006	0.018
INV	0.010	0.006	0.081	0.014	0.010	0.149
POP	-0.025	0.011	0.017	-0.015	0.012	0.172

The results demonstrate the critical role of institutional quality in mediating the effects of financial integration on consumer welfare. In low-IQ countries, IFI shows negative or insignificant effects, reflecting the inability of weak institutions to efficiently manage foreign capital inflows. Other variables, such as FD and GDP per capita, have modest positive effects, but macroeconomic stability (INF) and population pressures (POP) negatively influence welfare.

Above the threshold, in high-IQ countries, IFI has a strongly positive effect, highlighting that strong institutions enable economies to translate financial openness into tangible welfare gains. Developed countries overwhelmingly lie above the IQ threshold, showing strong IFI–welfare effects, while many developing countries remain below or near the threshold, exhibiting smaller gains and higher volatility. All control variables strengthen above the threshold, suggesting that institutional quality amplifies the positive impacts of financial depth, investment, and income.

These results are consistent with the FD threshold

analysis and emphasize that both financial development and institutional quality are necessary conditions for IFI to improve consumer welfare. Overall, institutional strength mitigates risks and enhances consumption stability, particularly in developing economies seeking to integrate into global financial markets.

4.3. Discussion

The results of this study highlight how crucial domestic conditions are in determining whether international financial integration (IFI) actually benefits consumers. Specifically, we find that financial development and institutional quality play a central role. Across both dimensions, IFI generates meaningful welfare gains only when countries have the capacity to effectively absorb and manage foreign capital flows. In other words, simply opening up financially is not enough countries need the right structures in place to turn global integration into real improvements in people's lives (Obstfeld, 1994; Kose et al., 2009).

Looking first at financial development, we identify a threshold of 54.7% of GDP. Countries above this level enjoy strong, positive effects from IFI: well-developed financial systems allow households to smooth consumption, diversify risk, and take full advantage of capital inflows (Prasad et al., 2007; Forbes, 2012). For countries below this threshold, however, the picture is less encouraging. Here, IFI has little or even slightly negative effects, reflecting the risks that shallow financial systems face such as misallocated credit, volatile exchange rates, and limited mechanisms for sharing risk. This is especially true in developing countries, where financial markets are often thin and households are more exposed to shocks from abroad.

Institutional quality shows a similar story. The threshold we identify, at 0.21, points to the importance of governance, regulatory frameworks, and the rule of law. Countries above this threshold see strong welfare gains from IFI, thanks to institutions that can manage financial risks, enforce contracts, and handle economic volatility (Alfaro et al., 2004; Kose et al., 2010). In contrast, countries with weaker institutions often see little benefit or even harm from financial integration, consistent with evidence that poor governance can magnify the risks of capital inflows, from rent-seeking and misallocation to crisis vulnerability (Rancière et al., 2008).

Other factors reinforce this story. Higher GDP per capita strengthens the positive effects of IFI, showing that wealthier countries are better equipped to make the most of global financial integration. Inflation, by contrast, consistently undermines welfare gains, particularly in low-threshold or developing countries, emphasizing the need for macroeconomic stability. Trade openness and investment generally help, but their positive impact is strongest when financial systems are well-developed or institutions are strong, highlighting how domestic capacity and global engagement go hand in hand.

Comparing developed and developing economies makes the picture even clearer. Developed countries mostly lie above both financial and institutional thresholds, explaining why they consistently benefit from IFI. Developing countries, on the other hand, are often below these thresholds, which means that opening up financially can bring volatility or unstable consumption rather than immediate welfare gains. This difference underscores the importance of tailored policy: broad liberalization without strengthening financial markets and governance may do more harm than good.

Overall, our findings show that absorptive capacity the ability to manage and utilize foreign capital is the key link between IFI and consumer welfare. Financial development and institutional quality act as complementary prerequisites: without them, global integration may not stabilize consumption or improve well-being. By quantifying these thresholds and highlighting nonlinear effects, this study bridges theory with robust empirical evidence across both developed and developing countries. Looking forward, it would be valuable for research to explore additional factors, like social safety nets, financial literacy, and capital account regulations, which could further shape how financial integration affects household welfare

4.4. Policy Implications

The results of this study show that international financial integration (IFI) does not affect all countries equally it depends heavily on domestic financial development (FD) and institutional quality (IQ). Countries that surpass the identified thresholds in FD and IQ enjoy substantial welfare gains. In contrast, countries below these thresholds mostly developing economies see little benefit, and in some cases, financial openness may even have negative effects. This underscores that policy efforts should focus on building domestic capacity before or alongside liberalization measures.

For developed countries, which generally lie above both thresholds, the priority is maintaining deep, well-functioning financial markets and robust institutions to continue benefiting from IFI. This

means fostering sophisticated financial intermediation, monitoring systemic risk, and ensuring strong regulatory oversight to manage potential external shocks.

Developing countries face a greater challenge. They need to strengthen their financial systems, expand markets, and improve access to credit. At the same time, institutional quality must be improved through governance reforms, transparency, effective contract enforcement, and anti-corruption measures. A phased approach to liberalizing capital accounts may be appropriate, ensuring that financial openness is paired with improvements in domestic financial and institutional capacity.

Complementary policies can further enhance the benefits of financial integration. Promoting investment, deepening trade linkages, maintaining macroeconomic stability, and implementing social safety nets can help households capture the gains of IFI. The results also emphasize the importance of macroeconomic conditions: factors like inflation and GDP per capita strongly influence how IFI affects consumer welfare. Policymakers, therefore, need to adopt strategies tailored to their country's absorptive capacity, ensuring that integration leads to real improvements in household well-being rather than increasing vulnerability.

Overall, the findings suggest that financial development and strong institutions are prerequisites for reaping the full benefits of global financial markets. By strengthening these structural conditions simultaneously, countries can maximize welfare gains, reduce potential risks, and support sustainable consumption and economic stability.

5. CONCLUSION

This study provides robust evidence on the nonlinear impact of international financial integration (IFI) on consumer welfare, demonstrating that the benefits of financial openness are far from uniform and are heavily conditioned by domestic structural conditions. Using a panel dataset spanning 1990–2022 and applying Hansen's (1999) Panel Threshold Regression, we identify clear thresholds in financial development (FD) and institutional quality (IQ) that delineate regimes in which IFI either enhances or fails to improve household welfare. Specifically, the estimated FD threshold at 54.7% of GDP and the IQ threshold at 0.21 indicate that countries must achieve a minimum level of financial sophistication and institutional capacity to fully capture the gains from global financial integration. These thresholds act as structural preconditions that shape the effectiveness of capital inflows, risk-sharing, and consumption smoothing mechanisms.

The analysis reveals a stark contrast between countries above and below these thresholds. Countries exceeding the FD threshold experience strong, positive, and statistically significant welfare gains, highlighting how deeper financial systems facilitate efficient intermediation, capital allocation, and consumption smoothing. Similarly, high-IQ countries benefit from strong governance and institutional frameworks that enable productive use of foreign capital while mitigating the risks associated with external financial shocks. In contrast, countries below these thresholds predominantly developing economies exhibit weak or even negative IFI effects. Shallow financial markets and weak institutions limit the capacity to absorb capital inflows, exposing households to volatility, misallocation, and consumption instability. These patterns emphasize the critical role of domestic absorptive capacity in translating financial openness into tangible improvements in well-being.

Macroeconomic and structural variables further shape the IFI–welfare relationship. Higher GDP per capita amplifies the benefits of financial integration, while inflation and rapid population growth tend to erode welfare gains, particularly in low-threshold regimes. Trade openness and investment generally support household welfare, but their positive effects are strongest in countries with adequate financial and institutional capacity, demonstrating the complex, nonlinear interaction between external integration and domestic conditions. Comparing developed and developing economies underscores this dynamic: most developed countries lie above the identified thresholds, consistently reaping welfare gains from IFI, whereas many developing countries remain below the thresholds, limiting the benefits of liberalization and highlighting the need for structural reforms prior to financial opening.

From a policy perspective, the findings point to a threshold-based, context-specific approach to financial integration. Developing countries should prioritize deepening financial systems, enhancing institutional quality, and stabilizing macroeconomic conditions before liberalization, ensuring that capital inflows translate into real consumption gains and economic stability. Complementary measures such as promoting investment, deepening trade linkages, implementing social safety nets, and strengthening financial literacy can further enhance the benefits of integration. Developed countries, while generally above thresholds, must maintain financial sophistication and institutional integrity, leveraging regulatory frameworks and macroprudential

measures to shield households from potential external shocks.

Overall, this study demonstrates that financial development and institutional quality are essential prerequisites for effective integration into global financial markets. By quantifying structural thresholds, highlighting nonlinearities, and emphasizing context-specific outcomes, it reconciles prior ambiguities in the literature, showing that the effectiveness of IFI depends critically on domestic capacity and governance. In conclusion, international financial integration can significantly enhance consumer welfare, but only when domestic economies are structurally prepared. Policymakers in developing countries should focus on structural reforms, phased liberalization, and complementary social and macroeconomic policies to ensure that financial integration contributes positively to household well-being. For developed economies, sustaining institutional strength and financial depth remains crucial to maintaining welfare gains in a globally integrated financial system. These insights provide actionable guidance for leveraging financial globalization in a way that is both inclusive and sustainable, while also suggesting avenues for future research on mediating factors such as social safety nets, financial literacy, and regulatory frameworks that further shape the IFI welfare relationship.

Competing Interests: The authors declare that they have no competing interests.
Acknowledgements: This research was funded by the General Directorate of Scientific Research & Innovation, Dar Al Uloom University, through the Scientific Publishing Funding Program.

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