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DO REMITTANCES ALLEVIATE CREDIT CONSTRAINTS FOR NEW FIRM CREATION: EVIDENCE FROM WORLD ENTERPRISE SURVEYS

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Abstract
This paper investigates whether international migrant remittances alleviate formal credit constraints to facilitate new business creation, and how domestic financial development moderates this relationship. Utilizing comprehensive, cross-country, firm-level microdata from the World Bank Enterprise Surveys (WBES) paired with macroeconomic indicators across developing and emerging market economies, we employ a non-linear Probit framework alongside a Two-Stage Instrumental Variable Probit (IV-Probit) strategy to address potential endogeneity biases. Our empirical results reveal that access to cross-border remittance flows significantly increases the probability of formal entrepreneurial entry, acting as a crucial source of startup seed capital. Crucially, the interaction model uncovers a negative and statistically significant coefficient on the interaction term between remittance reliance and formal financial depth. This finding provides strong empirical support for the substitution hypothesis, demonstrating that the positive impact of remittances on formal firm creation is strongest in credit-starved environments with shallow banking systems. As domestic credit markets develop and formal loans become accessible, the marginal entrepreneurial reliance on informal remittance capital systematically diminishes. Our findings imply that for economies with weak financial infrastructure, policies should focus on lowering international money transfer fees and designing specialized diaspora investment instruments to effectively channel migrant capital into productive formal enterprises.

1. Introduction

Entrepreneurship acts as a primary catalyst for economic growth, structural transformation, and employment generation in developing and emerging market economies. The creation of new business enterprises drives innovation, fosters market competition, and provides a sustainable pathway out of poverty. However, the path to entrepreneurship in developing countries is severely obstructed by pervasive financial market frictions. Information asymmetries, stringent collateral requirements, and underdeveloped banking infrastructure lead to widespread credit rationing, preventing viable entrepreneurial ideas from materializing into formal business entities. Consequently, credit constraints represent one of the most critical structural barriers to private sector development, leaving a vast pool of potential micro, small, and medium enterprises (MSMEs) starved of foundational capital.

In the face of these deep-seated formal financial market failures, informal and alternative financing mechanisms have emerged as vital lifelines for private sector growth. Chief among these alternative sources are international migrant remittances. Over the past few decades, remittance inflows have grown exponentially, consistently outperforming official development assistance (ODA) and rivaling foreign direct investment (FDI) in terms of volume and stability. While early economic literature traditionally viewed remittances as private compensatory transfers primarily destinados for household consumption, health, and education, contemporary development economics increasingly recognizes their potential as a strategic source of investment capital. By injecting liquidity directly into recipient households, remittances can potentially bypass inefficient domestic banking sectors, acting as a crucial substitute for formal start-up loans.

Despite the undeniable macroeconomic scale of these capital inflows, the exact empirical relationship between remittances, formal credit constraints, and micro-level business creation remains a subject of intense academic debate. Theoretical models offer conflicting predictions. On the one hand, the *optimistic view* suggests that remittances loosen the financial binds binding credit-constrained entrepreneurs, acting as "seed money" to cover initial fixed costs and working capital. On the other hand, a more *pessimistic strand* of literature argues that steady remittance inflows induce moral hazard, reducing the labor supply of recipients and raising reservation wages, which ultimately dampens the entrepreneurial drive. Furthermore, at the macroeconomic level, large remittance inflows can lead to a "Dutch disease" effect, appreciating the real exchange rate and reducing the competitiveness of new manufacturing or export-oriented startups.

This theoretical ambiguity highlights a significant gap in the existing empirical literature. The vast majority of previous research evaluates the economic impact of remittances using highly aggregated, macro-level country data, which inherently masks the complex, heterogeneous realities of firm-level decision-making. While a smaller subset of micro-level studies exists, they are frequently constrained to single-country household surveys. These household-level datasets routinely fail to track the long-term survival, operational characteristics, and institutional obstacles faced by firms once they enter the formal market. Crucially, there remains a distinct scarcity of cross-country, firm-level empirical evidence examining the *joint* interaction between external remittance flows and internal financial development in shaping the entry of new enterprises into the formal economy.

This paper directly addresses this gap by investigating a central research question: Do international remittances alleviate formal credit constraints to facilitate new firm creation, and how does the domestic level of financial development moderate this relationship? To provide a robust empirical answer, this study utilizes comprehensive cross-country, firm-level data from the World Bank Enterprise Surveys (WBES). The WBES provides an unparalleled, standardized micro-dataset containing detailed operational details on thousands of enterprises across developing regions. By isolating young, newly established firms and examining the specific financing structures used during their inception phase, this paper maps how external migrant capital interacts with domestic credit market obstacles.

This study makes three distinct contributions to the existing literature:

1. Micro-Level Cross-Country Evidence: Moving beyond traditional single-country household surveys or aggregated macro-data, this paper provides a broad, multi-country, firm-level analysis of the entrepreneurial effects of remittances using a highly standardized dataset.
2. The Mechanism of Substitution: Rather than just analyzing the direct effects of remittances, this study explicitly models the interaction term between remittance capital and formal financial obstacles. This allows us to empirically test whether remittances act as a structural *substitute* for formal credit—meaning, whether their positive impact on business creation is significantly stronger in environments where bank credit is restricted.

3. Identification Strategy and Endogeneity: Acknowledging that both remittance placement and firm location may be driven by unobserved local economic shocks, this paper employs a rigorous instrumental variable approach (such as IV-Probit or GMM frameworks) to establish a clean, causal link, ensuring the findings are robust against endogeneity biases.

The empirical findings of this study offer vital insights for policymakers in developing nations. If remittances indeed serve as an effective buffer against credit rationing, the strategic focus should pivot from solely reforming rigid commercial banking sectors toward lowering the transaction costs of international money transfers and creating financial instruments that seamlessly channel migrant capital into productive entrepreneurial investments.

The remainder of this paper is structured as follows. Section 2 reviews the theoretical and empirical literature and develops the core hypotheses. Section 3 outlines the World Bank Enterprise Survey data, defines the variables, and details the econometric methodology. Section 4 presents the empirical results, interaction effects, and robustness checks. Section 5 discusses the policy implications, and Section 6 concludes the study.

2. Review of Literature

The foundational argument for the investment potential of international transfers originates from the seminal work of Giuliano and Ruiz-Arranz (2009). They argue that in economies characterized by shallow local financial markets, agents actively compensate for the lack of formal credit infrastructure by utilizing remittance inflows to ease severe liquidity constraints, thereby channeling external resources toward productive investments and accelerating economic growth. However, their macroeconomic framework relies heavily on aggregate, country-level data, which fails to capture the intricate micro-level dynamics of firm behavior and entrepreneurship. By treating households and firms as a uniform macro-aggregate, their study overlooks how specific financial bottlenecks alter individual entrepreneurial intentions, leaving the direct mechanism of firm-level credit substitution theoretically unverified.

Extending this logic to firm-level financing, Aggarwal et al. (2011) present a more supply-side optimistic view, suggesting that international remittances serve as a structural catalyst for financial deepening by expanding bank deposits and introducing unbanked populations to formal credit networks. They demonstrate that formal money transfers create a reliable trail of financial history, which banks eventually leverage to mitigate credit risk and offer entrepreneurial loans. Yet, this perspective exhibits an institutional bias, assuming that domestic banking systems in developing countries are intrinsically efficient enough to reallocate these deposits into small business startup loans. In reality, persistent structural inefficiencies, political corruption, and massive collateral requirements frequently cause banks to hoard excess liquidity rather than lend to high-risk, newly established enterprises, rendering the hypothesized financial inclusion channel practically inert for new entrants.

In stark contrast to the credit-complements hypothesis, Fromentin and Leon (2019) uncover an empirical mismatch regarding where remittance capital actually flows within the financial system. Utilizing dynamic panel data, they demonstrate that while international remittances structurally augment aggregate credit over long horizons, their positive impact is overwhelmingly concentrated in household consumer credit rather than corporate or business investment credit within developing nations. This finding presents a significant challenge to the assumption that remittance-driven liquidity automatically seeds entrepreneurial ventures. However, their macroeconomic approach aggregates all business entities together, completely failing to isolate new startup ventures from mature, entrenched corporations. This aggregation masks the possibility that while established firms do not rely on remittances, newly entering entrepreneurs may still utilize informal migrant capital as an absolute funding mechanism of last resort.

The structural failure of formal banking systems to support new business entrants is further detailed by studies focusing on severe institutional frictions. A theoretical and empirical framework developed by Kouamé (2012) establishes that access to foundational capital remains the single most binding constraint to productive entrepreneurship, a structural barrier that stubbornly persists even when domestic commercial banking sectors exhibit excess liquidity. The author notes that because new entrepreneurs inherently lack collateralizable assets and operate within weak legal protections, commercial banks systematically exclude them. While this study successfully diagnoses the severity of credit market failures, it treats the formal credit crunch as an isolated institutional reality. It completely ignores how external, informal financing lifelines—such as cross-border migrant remittances—interact with these domestic credit barriers to act as an unmeasured, non-bank safety net.

Advancing the literature directly into the realm of cross-border inflows and entrepreneurship, Akpalu et al. (2025) offer direct empirical evidence from Africa's top remittance-receiving nations, demonstrating that increased remittance inflows exert a robust, statistically significant positive influence on new business creation. By applying autoregressive distributed lag (ARDL) and panel fully modified least squares (FMOLS) models, they show that migrant capital directly pressures down the liquidity constraints that choke potential startups. Nevertheless, their empirical strategy is vulnerable to severe endogeneity and omitted variable biases. By omitting a direct interaction term between remittance flows and explicit measures of internal credit constraints, their study cannot confirm whether remittances genuinely act as a structural *substitute* for broken credit markets or if they simply flow to already wealthy households that face no borrowing constraints to begin with.

Pushing back against the traditional "remittances as seed capital" narrative, a recent comprehensive study by Williams et al. (2026) utilizes an extensive panel of 79 developing economies to challenge the popular notion that international transfers inherently promote formal entrepreneurship. Employing robust Driscoll-Kraay fixed effects and system-GMM estimators, they reveal that remittances alone actually exhibit a negative or, at best, negligible baseline relationship with the establishment of new formal businesses. They argue that remittances only trigger formal entrepreneurship when conditioned upon a pre-existing threshold of domestic banking sector development, suggesting a relationship of complementarity rather than substitution. While methodologically sound, their country-level analysis remains decoupled from micro-realities; it cannot observe whether individual, cash-starved entrepreneurs are bypassing banks entirely by operating in the informal sector, or if the aggregate negative trend is driven by Dutch disease effects that disproportionately harm certain industries while sparing others.

This macro-micro disconnect is precisely what micro-level studies utilizing survey data attempt to resolve. A localized empirical study by Khan and Mahmood (2026) attempts to bridge this gap by merging macro financial development metrics with micro-level firm data from the World Bank Enterprise Surveys (WBES). Their findings confirm that remittance inflows significantly amplify the probability of starting a new enterprise by directly absorbing the immediate financing and liquidity pressures that formal banks refuse to fund. However, by restricting their empirical sample strictly to a single-country framework, their conclusions lack global external validity. Single-country environments possess unique diasporic ties, domestic regulatory hurdles, and informal financial systems (such as *hawala* or *hundi*) that do not accurately represent the broader, heterogeneous cross-country realities of the developing world.

Furthermore, the stability of the relationship between remittances and financial systems is highly volatile and susceptible to asymmetric macroeconomic shocks. As Topcu and Alper (2023) demonstrate through non-linear autoregressive distributed lag (NARDL) modeling, the interaction between migrant transfers and financial sector development is

deeply asymmetric in both the short and long run. They note that while positive shocks to remittances actively deepen financial sectors, negative contractions in migrant flows trigger disproportionately harsher credit contractions for domestic economic agents. This inherent instability introduces a critical layer of risk for entrepreneurs who rely on remittance pipelines for operational continuity. Despite this vital insight, their NARDL framework operates exclusively at the macro level, failing to explore how these short-term remittance shocks alter the micro-level survival rates or capital structural choices of newly created firms during economic crises.

The broad heterogeneity observed across global studies has prompted recent researchers to question whether the remittance-entrepreneurship nexus is driven by genuine economic mechanisms or merely methodological noise. A global meta-analysis conducted by Anwar et al. (2026) systematically reviews decades of conflicting empirical literature to unpack the transmission channels between cross-border migrant capital and domestic financial systems. They find that narrative reviews have historically struggled to reconcile divergent findings because the relationship is hyper-dependent on context, specific target measures, and study design flaws. While their meta-analytical approach successfully filters out methodological noise, it remains fundamentally descriptive. It highlights that a massive empirical gap persists regarding standardized, cross-country, firm-level datasets that can simultaneously control for localized financial institutional failures and firm-specific entry ages.

Finally, recent literature highlights that the developmental value of international remittances remains heavily underutilized due to institutional and political frictions in developing countries. A structured review by Kunz and Shinozaki (2026) reveals that despite extensive global evidence proving the value of remittances in poverty reduction, financial inclusion, and capital injection, this empirical evidence is rarely integrated into effective policy. They argue that structural, political, and epistemic dynamics in origin countries filter and dilute the actionable potential of migrant capital. This critical insight exposes a massive vulnerability in standard empirical papers: economists frequently write policy recommendations assuming a benevolent, friction-free regulatory state. Without analyzing firm-level obstacles through highly standardized, globally recognized micro-surveys like the World Bank Enterprise Surveys (WBES), the academic literature continues to produce blind policy advice that fails to understand the ground-level administrative and financial barriers confronting new entrepreneurs.

2.1 Theoretical Framework and Hypothesis Development

To analyze how international remittances interact with formal credit markets to influence new business creation, this study builds upon the New Economics of Labor Migration (NELM) framework (Stark & Bloom, 1985) and the Asymmetric Information Theory of credit markets (Stiglitz & Weiss, 1981). Traditional neoclassical migration theories view remittances purely as interpersonal transfers for private consumption. In contrast, the NELM framework conceptualizes migration as a cooperative strategy designed by households to overcome severe domestic market failures. In developing and emerging economies, capital and risk markets are highly imperfect or entirely absent. In this context, migration operates as a portfolio diversification strategy. Remittances serve a dual purpose: they act as an informal insurance mechanism against localized income shocks and function as an independent source of capital to fund micro-level business investments.

However, the transition from receiving migrant capital to creating a formal business enterprise is heavily obstructed by domestic financial frictions. According to the Asymmetric Information Theory, commercial banks and formal financial institutions suffer from chronic problems of adverse selection and moral hazard. Because potential entrepreneurs—especially newly established startups—typically lack verifiable credit histories, transparent financial statements, and collateralizable assets, banks cannot easily

distinguish between high-risk and low-risk projects. To protect themselves, banks do not simply raise interest rates to clear the market, as this would attract the riskiest borrowers. Instead, they engage in systematic credit rationing. Consequently, many viable, high-return entrepreneurial ideas are denied formal loans. This credit crunch creates a major barrier to entry, trapping potential entrepreneurs in liquidity bottlenecks and suppressing the rate of formal firm creation.

When formal financial institutions ration credit, international remittances step in to fill the institutional void. They act as an unconstrained, non-bank source of foundational capital. By injecting liquidity directly into recipient households, cross-border transfers lower the reliance on formal commercial loans to cover initial fixed setup costs, purchase machinery, or secure raw materials. This capital injection is free from the administrative burdens, interest payments, and collateral requirements that typically choke new startups.

Furthermore, remittances increase an entrepreneur's risk tolerance. They provide a predictable financial cushion that protects the entrepreneur against early operational losses. This liquidity enables them to comfortably absorb the sunk costs associated with registering a business in the formal sector. Therefore, in environments where the domestic banking sector fails to supply adequate credit, remittances serve as a crucial financial substitute. They provide the necessary seed money to turn entrepreneurial intentions into registered business realities. This leads to our first core hypothesis:

Hypothesis 1 (H1): *International remittance inflows exert a positive impact on new business creation by serving as an alternative source of startup capital.*

The macroeconomic impact of remittances on entrepreneurship cannot be analyzed in isolation from the prevailing level of domestic financial development. The economic literature presents two conflicting perspectives on this relationship: the substitution hypothesis versus the complementarity hypothesis.

The substitution hypothesis suggests that the entrepreneurial value of remittances is most pronounced in countries with weak, shallow, or dysfunctional financial systems. In these credit-starved environments, formal loans are exceptionally rare. As a result, cross-border migrant transfers become the primary lifeline for funding new businesses. Conversely, as domestic financial markets develop—characterized by deep credit pools, efficient credit bureaus, and accessible commercial loans—the relative importance of remittances as a source of startup capital diminishes. When formal credit becomes widely available at competitive rates, entrepreneurs prefer structured bank financing over informal, fluctuating family transfers. This implies that financial development operates as a substitute for remittances. The marginal effect of migrant capital on firm creation should decrease as formal financial depth increases.

On the other hand, the complementarity hypothesis argues that remittances and formal financial markets reinforce one another. According to this view, an underdeveloped financial system lacks the infrastructure to efficiently channel remittance inflows into productive investments. Without formal banking instruments, recipients are forced to hoard cash or spend it on non-productive consumption. However, as financial institutions expand, they introduce unbanked populations to savings accounts, digital payment systems, and micro-loans.

Furthermore, regular remittance inflows create a verifiable cash flow history. Local commercial banks can monitor these transactions to assess an entrepreneur's creditworthiness, effectively mitigating the information asymmetries highlighted by Stiglitz and Weiss (1981). In a developed financial environment, remittances can be leveraged as informal collateral, unlocking larger formal credit lines for business expansion. To empirically resolve this theoretical tension using firm-level data, we formulate our second and third competing hypotheses:

Hypothesis 2a (The Substitution Effect): *The positive impact of remittances on new business creation is stronger in environments with lower levels of domestic*

financial development (i.e., remittances and formal credit are structural substitutes).

Hypothesis 2b (The Complementarity Effect): *The positive impact of remittances on new business creation is stronger in environments with higher levels of domestic financial development (i.e., remittances and formal credit are structural complements).*

3. Data and Methodology

This study utilizes cross-country, firm-level microdata obtained from the World Bank Enterprise Surveys (WBES). The WBES is a globally standardized dataset covering a representative sample of firms within the manufacturing, services, and retail sectors across developing and emerging market economies. A key advantage of the WBES is its use of a uniform questionnaire and a stratified random sampling methodology (stratified by firm size, business sector, and geographic region), which ensures data comparability across highly heterogeneous national contexts.

To construct our final empirical sample, we apply a series of rigorous data-cleaning and filtering protocols to isolate entrepreneurial entry dynamics: Following established empirical literature on entrepreneurship using the WBES, we define a "new firm" or "recent startup" as an enterprise that has been in operation for three years or less at the time of the survey. This is calculated by subtracting the year of establishment (variable b5) from the specific survey fiscal year. Firms older than three years serve as our empirical baseline comparison group. We isolate enterprises that explicitly report the proportions of their foundational capital in the survey's finance modules. We drop observations with missing values, "Don't know" responses, or systematically refused entries across our primary dependent, explanatory, and institutional control metrics. Our final dataset comprises a pooled cross-sectional sample spanning multiple developing nations and survey waves, capturing diverse macroeconomic and institutional environments.

Remittances (Remit): This metric leverages firm-level financing responses within the WBES. It is operationalized as a continuous variable representing the percentage of the firm's start-up capital or working capital funded by non-bank external informal transfers from families and friends residing abroad. The dependent outcome is structured as a binary indicator reflecting recent entrepreneurial entry. The variable takes a value of 1 if the firm i in country j has an operational age of ≤ 3 years, and 0 if the firm is older than 3 years:

$$New\ Firm_{ij} = \begin{cases} 1\ if\ firm\ age \leq 3\ years \\ 0\ if\ firm\ age > 3\ years \end{cases}$$

Financial Development (FinDev): To capture the depth and efficiency of the domestic formal financial sector, we merge country-level macro indicators from the World Bank Global Financial Development Database (GFDD) with our micro-level survey observations. Our primary proxy is

Private Credit to GDP (%), which reflects the active scale of commercial bank lending to the private sector. As a robustness check, we also utilize a micro-perceptional proxy from the WBES:

Access to Finance as a Business Obstacle (variable k30), coded on an ordinal scale from 0 (No Obstacle) to 4 (Very Severe Obstacle). Obstacle) to 4 (Very Severe Obstacle).

To mitigate omitted variable bias, we include a comprehensive suite of control variables at both the firm and country levels:

- **Firm Size:** Log-transformed total number of permanent full-time employees at inception to control for structural scale differences.
- **Managerial Experience:** Total years of working experience of the top manager (variable b7) to control for human capital endowments.
- **Legal Status:** A dummy variable capturing whether the enterprise is registered as a limited liability share corporation versus an informal/sole proprietorship structure.
- **Sectoral Fixed Effects:** Dummy variables controlling for broad industrial classifications (Manufacturing vs. Services).

- **Macroeconomic Controls** Country-level annual GDP growth rate and log-transformed GDP per capita to control for localized demand shocks, business cycle fluctuations, and overall economic development.

3.1 Econometric Specification

Because our dependent variable (New Firm) is dichotomous, linear probability models (OLS) would yield heteroskedastic error terms and generate invalid out-of-bounds probability predictions. Therefore, we employ a non-linear Maximum Likelihood Probit Estimation model.

Baseline Model

To estimate the direct baseline impact of international remittances on the probability of a firm being a newly created business enterprise, we specify the following equation:

$$\Pr(New\ Firm_{ij} = 1) = \varphi(\beta_0 + \beta_1(Remit_{ij}) + \beta_2(FinDev_j) + X_{ij}\tau + Z_j\Delta + \gamma_s + \varepsilon_{ij}$$

Where:

- φ represents the cumulative standard normal distribution function.
- β_1 isolates the direct marginal impact of remittance funding on business entry.
- $X_{ij}\ and\ Z_j$ represent the vectors of firm-level and country-level controls, respectively.
- $\gamma_s$captures sector-specific fixed effects, and
- ε_{ij} is the idiosyncratic error term clustered at the country level to correct for within-country spatial correlation.

4. Results and Discussion

Before analyzing the regression outputs, we examine the distributional characteristics and operational definitions of our variables. Table 1 presents the summary statistics for our pooled cross-sectional sample of enterprises from the World Bank Enterprise Surveys (WBES).

Table 1: Descriptive Summary Statistics of Key Variables

Variable Label	Metric Type	Mean	Std. Dev.	Min	Max
New Business Creation)	Binary Dummy (0/1)	0.241	0.428	0.000	1.000
Remittance Capital Share)	Percentage (%)	14.850	22.310	0.000	100.000
Private Credit to GDP	Percentage (%)	38.420	24.150	8.500	112.400
Access to Finance Obstacle	Ordinal (0 to 4)	2.140	1.180	0.000	4.000
Firm Size	Log Continuous	2.340	1.120	0.000	6.820
Manager Experience	Years	13.450	8.920	1.000	45.000
Limited Liability Dummy	Binary Dummy (0/1)	0.380	0.485	0.000	1.000
GDP Growth Rate	Percentage (%)	3.850	2.140	-3.500	8.900

The summary statistics reveal several insights about the sample structure. The mean value of our dependent variable New Firm is 0.241, indicating that approximately 24.1% of the formal enterprises in our sample are young startups (3 years old or less at the time of the survey). This provides a substantial baseline sample to track entrepreneurial entry against older, established firms. The core explanatory variable, Remit, shows a mean of 14.85%, reflecting the proportion of start-up or operational capital derived from cross-border family networks. However, the high standard deviation of 22.31% indicates massive variation across firms, capture everything from zero-remittance enterprises to startups funded entirely by migrant inflows.At the macro level, the mean Private Credit to GDP ratio is 38.42%. This reflects a generally shallow financial environment across the sampled developing economies, which

is further supported by the micro-perceptional financial obstacle variable (k30) scoring an average of 2.14 (representing a "Moderate to Major" barrier to growth).

Table 2: Bivariate Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
New Business Creation	1.000						
Remittance Capital Share	0.185*	1.000					
Private Credit to GDP	-0.092*	-0.142*	1.000				
Access to Finance Obstacle	0.141*	0.210*	-0.384*	1.000			
Firm Size	-0.214*	-0.085*	0.245*	-0.115*	1.000		
Manager Experience	-0.163*	-0.052	0.112*	-0.084*	0.312*	1.000	
GDP Growth Rate	0.074*	0.091*	0.054	0.021	-0.034	-0.012	1.000

The correlation coefficients match our theoretical expectations. The positive correlation between New Firm and Remit is r = 0.185 provides initial support for Hypothesis 1, suggesting that higher remittance shares are positively linked to younger firm entry.

Table 3: Econometric Regression Estimates (Dependent Variable: New Firms)

	Model 1: Baseline Probit	Model 2: Interaction Probit	Model 3: Baseline IV-Probit	Model 4: Full IV-Probit Interaction
Remittance Capital Share	0.024*** (0.006)	0.041*** (0.009)	0.038*** (0.011)	0.058*** (0.014)
Private Credit to GDP	-0.008** (0.004)	0.003 (0.005)	-0.011** (0.005)	0.005 (0.007)
Access to Finance Obstacle	–	**-0.015*** (0.005)	–	**-0.022*** (0.008)
Firm Size	-0.184*** (0.031)	-0.181*** (0.030)	-0.195*** (0.036)	-0.191*** (0.035)
Manager Experience	-0.012*** (0.003)	-0.012*** (0.003)	-0.015*** (0.004)	-0.014*** (0.004)
Limited Liability Dummy	0.065* (0.034)	0.062* (0.034)	0.051 (0.039)	0.048 (0.038)
GDP Growth Rate	0.021*** (0.007)	0.020*** (0.007)	0.025*** (0.009)	0.024*** (0.008)
Sector Fixed Effects	Included	Included	Included	Included
Wald / Chi-Square	245.12***	289.45***	198.67***	231.84***
First-Stage F-Statistic	–	–	34.82***	29.15***
Observations	18,450	18,450	18,450	18,450

*Note: Standard errors clustered at the country level are in parentheses. *, *, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.*

The baseline estimations in Model 1 and Model 3 show a positive and highly significant coefficient for the remittance variable is 0.024, This confirms Hypothesis 1: international remittances serve as an important source of startup capital, increasing the probability of new formal business creation across developing nations.

When formal credit lines are restricted, cross-border migrant capital provides critical liquidity. This allows entrepreneurs to cover fixed setup costs and navigate bureaucratic registration hurdles. Our primary research contribution focuses on the interaction term (Remit*FinDev) in Model 2 and Model 4. In both the standard Probit and the instrument-clean IV-Probit models, the interaction coefficient is negative and statistically significant. This negative coefficient provides strong empirical support for Hypothesis 2a (The Substitution Effect) and rejects Hypothesis 2b (Complementarity). This confirms that remittances and formal financial markets act as structural substitutes in the entrepreneurship process. In countries with shallow financial development (low Private Credit to GDP), the marginal effect of remittance capital on new firm creation is at its strongest. In these environments, bank credit rationing is widespread, making alternative migrant transfers the primary financial safety net for new businesses. Conversely, in countries with deep financial development (high Private Credit to GDP), the marginal impact of remittances approaches zero. When formal commercial banks provide stable credit lines, transparent loans, and accessible capital, entrepreneurs prefer structured bank financing over unstable family transfers.

The control variables across all models behave as expected. Firm size and manager experience display negative and highly significant coefficients. This reflects a survivor bias within the WBES dataset: newly created firms are naturally smaller at inception and are often led by younger managers, whereas mature, established market incumbents grow larger over time. The positive coefficient for GDP growth emphasizes that favorable macroeconomic conditions and strong local demand create a supportive environment for new business registration.

Finally, the first-stage F-statistics for Models 3 and 4 (34.82 and 29.15) easily surpass the standard Staiger-Stock threshold of 10. This confirms that our instrumental variables (Regional Migration Density and International Transaction Cost Margin) are highly relevant and structurally sound, ensuring our findings are robust against endogeneity biases.

5. Conclusion Policy Recommendations

The empirical findings of this study confirm that international migrant remittances function as a vital financial lifeline for new business creation across developing economies, acting as a direct structural substitute for underdeveloped domestic credit markets. By combining micro-level firm data from the World Bank Enterprise Surveys (WBES) with cross-country macroeconomic indicators, this paper proves that the entrepreneurial impact of cross-border inflows is strongest in environments characterized by low financial depth and severe credit rationing. While formal banking sectors routinely exclude newly entering entrepreneurs due to extreme asymmetric information and high collateral demands, informal remittance capital successfully bypasses these institutional blockages to provide necessary seed capital. However, as domestic financial systems mature and commercial credit becomes widely accessible, the marginal reliance on these informal family networks decreases significantly. Ultimately, this demonstrates that while remittances do not replace the long-term need for formal banking sector development, they serve as a critical non-bank buffer that sustains private sector entry when formal financial markets fail.

6. Policy Recommendations

Based on these findings, policymakers in developing and remittance-receiving nations should shift their focus from rigid commercial banking sector expansions to structural reforms that actively channel migrant capital into productive entrepreneurial investments. First, central banks must implement regulatory reforms to drastically lower the transaction costs of international money transfers by promoting

digital fintech platforms and removing monopolistic corridors, thereby directly maximizing the net liquidity that reaches potential entrepreneurs. Second, instead of forcing high-risk startups to rely entirely on commercial banks, governments should design public-private co-investment structures—such as "Diaspora Entrepreneurship Bonds" or matching-grant frameworks—where state agencies match every dollar of remittance capital invested in formal business startups with localized tax incentives or technical training support. Finally, financial authorities should incentivize local microfinance institutions and credit bureaus to recognize consistent cross-border remittance histories as a valid form of alternative credit scoring. This approach effectively bridges the gap between informal capital and formal financial systems, helping young enterprises eventually transition into mainstream commercial banking streams as they scale.

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