



Entrepreneurship Support Programs and Economic Development in Algeria: A Comprehensive Assessment

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Abstract

This study undertakes a comprehensive longitudinal assessment of entrepreneurship support programs (ESPs) in Algeria and their measurable impact on economic development over the last two decades spanning 2000 to 2022. Algeria has deployed a succession of state-led frameworks, including the National Entrepreneurship Support and Development Agency (NESDA), the National Unemployment Insurance Fund (CNAC), the Algerian Investment Promotion Agency (AAPI), that collectively disbursed billions of dinars in subsidised financing, technical assistance, and fiscal incentives. Employing a mixed-methods design that integrates macro-level econometrics with descriptive analysis, the study examines whether and to what extent these programs have contributed to GDP growth, employment generation, sectoral diversification, and regional economic convergence. Quantitative findings from an Autoregressive Distributed Lag (ARDL) model estimated over 2000–2022 annual data reveal a statistically significant long-run positive relationship between cumulative ESP expenditure and non-hydrocarbon GDP growth (β



= 0.31, $p < 0.01$). However, bureaucratic complexity, limited post-creation mentoring, restricted access to markets, and weak linkages between ESPs and national research and innovation ecosystems suppress the transformative potential of public entrepreneurship investments. The article concludes with a policy framework recommending ecosystem-based restructuring of ESPs, enhanced coordination with higher education, and targeted interventions for high-growth entrepreneurship.

Keywords: entrepreneurship support programs; economic development; Algeria; NESDA; CNAC; AAPI; non-hydrocarbon diversification; ARDL.

JEL Classification: L26, O43, O55, H81, R11

1. Introduction:

1.1 Research Background

The importance of entrepreneurship as a catalyst for economic change in developing and emerging nations is becoming more widely acknowledged. The seminal contributions of Schumpeter (1934), Kirzner (1973), and Wennekers and Thurik (1999) collectively established a theoretical foundation linking entrepreneurial activity to the processes of creative destruction, market equilibration, and aggregate productivity growth. In the contemporary development policy landscape, international organizations including the World Bank, the United Nations Development Programme (UNDP), and the Organisation for Economic Co-operation and Development (OECD) have consistently advocated for the integration of entrepreneurship promotion into national economic development strategies, particularly in resource-dependent economies seeking structural transformation.

Algeria presents one of the most consequential and instructive cases for examining the nexus between state-sponsored entrepreneurship support and economic development outcomes. The country has maintained a high degree of economic dependence on hydrocarbon revenues, which consistently account for between 60 and 70 percent of state budget receipts and more than 90 percent of total export earnings over the study period (ONS, 2024; IMF, 2023). This structural vulnerability, starkly exposed during the oil price collapses of 2014-2016 and, subsequently, the COVID-19 shock of 2020, has generated persistent and politically salient pressures to develop a dynamic private sector capable of absorbing a rapidly growing working-age population. With a population exceeding 46 million and a youth unemployment rate that reached a very high percentage in 2023 (ILO, 2024), the stakes of the entrepreneurship policy agenda extend beyond economic efficiency to encompass social stability and political legitimacy.

Since 2000, the Algerian state has launched or restructured a sequence of large-scale ESPs, the most prominent being NESDA, previously National Agency for Youth Employment Support ANSEJ, (1996, significantly expanded post 2000), CNAC (launched 2004 for unemployed workers aged 35–50), and AAPI (transformed from APSI as a general investment promotion agency. Then ANDI (National Agency for Investment Development 2002), which consolidated and rebranded several predecessor institutions under a unified entrepreneurship ecosystem



mandate. Together, these organizations provided business development services, tax exemptions, subsidized equipment purchases, concessional financing, and premises. Official statistics from the Ministry of Entrepreneurship and Microenterprises indicate that more than 700,000 micro-enterprise projects received financing support through these schemes between 2000 and 2022 (MIPP, 2022).

Despite this extensive institutional effort, the transformation of the Algerian productive structure has proceeded slowly. The non-hydrocarbon private sector remains underdeveloped relative to regional peers, intra-industry diversification is limited, and the World Bank's Ease of Doing Business index consistently ranked Algeria in the lower half of global comparators before the index was discontinued in 2021. The current investigation is motivated by this seeming contradiction between the magnitude of public support and the modest structural results

1.2 Research Gap

The academic literature on entrepreneurship support programs (ESPs) in Algeria and, more broadly, in the MENA (Middle East and North Africa) region remains sparse, methodologically uneven, and often descriptive rather than analytical. A number of Algerian and francophone journal publications have documented the operational features of ANSEJ and CNAC (Kherbachi & Benyahia, 2017; Boukella, 2019; Tlemçani, 2021), but these contributions typically rely on cross-sectional survey data, omit rigorous counterfactual analysis, and fail to situate program outcomes within macroeconomic dynamics. Comparative international studies on entrepreneurship support, notably those by Audretsch et al. (2002), Lerner (2009), Mason and Brown (2014), and Minniti (2008), provide conceptual anchoring but are insufficiently attentive to the institutional specificities of late-developing, oil-dependent states.

A critical gap exists in the longitudinal, macroeconomic measurement of ESP impact in Algeria. While program-level monitoring data are available through state agencies, no peer-reviewed study has integrated these administrative data with national accounts statistics and enterprise-level survey evidence within a unified empirical framework spanning the entire 2000-2022 period. Additionally, the qualitative dimensions of program failure, particularly the lived experiences of beneficiary entrepreneurs navigating bureaucratic barriers, market exclusion, and inadequate post-creation support, remain substantially underexplored in the English-language literature.

1.3 Problem Statement

The central problem this article addresses is the following: despite sustained and large-scale public investment in entrepreneurship support over two decades, Algeria has not achieved the structural economic transformation that program objectives imply. The persistence of hydrocarbon dependence, high enterprise mortality, low innovation intensity, and spatial concentration of economic activity suggest that the current ESP model may be insufficiently aligned with the drivers of sustained, broad-based economic development. Understanding the precise mechanisms through which current programs generate or fail to generate economic value



and identifying the institutional, financial, and environmental constraints that limit their effectiveness is therefore a matter of urgent empirical and policy importance.

1.4 Research Objectives:

This study pursues five primary research objectives:

- (i) To systematically document the institutional evolution, financial scale, and operational characteristics of major entrepreneurship support programs (ESPs) in Algeria from 2000 to 2022.
- (ii) To econometrically estimate the long-run relationship between aggregate ESP investment and key macroeconomic development indicators, including non-hydrocarbon GDP growth, formal employment, and export diversification.
- (iii) To identify, through in-depth qualitative inquiry, the principal structural and institutional barriers that constrain ESP effectiveness.
- (iv) To derive evidence-based policy recommendations for restructuring ESPs to better serve long-run economic development goals.

1.5 Research Questions and Hypotheses:

The study is guided by the following research questions:

RQ1: What is the aggregate macroeconomic effect of entrepreneurship support program (ESP) expenditure on non-hydrocarbon GDP and formal employment in Algeria between 2000 and 2022?

RQ2: What structural barriers most significantly constrain the effectiveness of ESPs in contributing to economic diversification?

In line with these questions, the following hypotheses are tested:

H1: There exists a positive and statistically significant long-run relationship between cumulative ESP expenditure and non-hydrocarbon GDP growth in Algeria.

H2: Bureaucratic complexity and limited access to markets are the most frequently cited barriers constraining ESP effectiveness, as reported by program beneficiaries and policy experts.

2. Literature Review

2.1 Theoretical Foundations

The intellectual architecture of this study draws on three interlocking theoretical traditions. First, the Schumpeterian tradition emphasizes the entrepreneur as an agent of creative destruction who disrupts existing market equilibria through innovation, thereby driving long-run growth (Schumpeter, 1934; Aghion & Howitt, 1992). From this perspective, ESPs that facilitate entry into productive activities should enhance allocative efficiency and stimulate innovation externalities. Second, the Kirznerian tradition foregrounds the entrepreneur's role in identifying and exploiting market disequilibria. an insight relevant to understanding how micro and small enterprises fill gaps in Algeria's underdeveloped non-hydrocarbon markets (Kirzner, 1973).

Third, and most directly germane to the state-supported context examined here, the developmental state literature originating with Johnson (1982) and extended to Africa by Evans



(1995) and to the Gulf region by Hertog (2010) theorizes the conditions under which dirigiste industrial and entrepreneurship policies can succeed. This literature predicts that ESP effectiveness depends critically on state capacity, bureaucratic autonomy, and the existence of embedded policy networks linking public agencies, financial institutions, and the productive private sector. Algeria's unique political economy, blending centralized planning with partial market liberalisation, offers a distinct and theoretically intriguing framework for exploring these ideas.

The entrepreneurial ecosystem concept, as introduced by Isenberg (2010) and further refined by Stam (2015) and Spigel (2017), offers a distinct theoretical perspective. This framework holds that entrepreneurship thrives not through isolated program interventions, but through the co-evolutionary development of interconnected institutions, encompassing finance, talent, culture, networks, markets, and governance. Assessing ESPs against the ecosystem benchmark, rather than merely counting firm creations, opens a more searching evaluation of program design adequacy.

2.2 Empirical Evidence on ESP Effectiveness

The extensive empirical literature regarding the macroeconomic effects of ESPs yields conflicting findings. Lerner (2009) reviewed publicly backed venture and small business programs across OECD countries and concluded that poorly designed interventions frequently misallocate capital, subsidize low-quality entrepreneurship, and crowd out private finance. By contrast, rigorous evaluations of specific programs, such as the US Small Business Innovation Research (SBIR) program (Audretsch et al., 2002) and Germany's KfW Mittelstandsbank financing (Czarnitzki & Hottenrott, 2011), document positive effects on innovation, employment, and survival when programs incorporate selection based on quality and provide sustained post-creation support.

In the African context, McKenzie (2017) utilized randomized control trials in Nigeria and Ghana to demonstrate that standalone business training yields modest enterprise performance enhancements, whereas financial access instills more significant and enduring benefits. Grimm and Paffhausen (2015) perform a systematic review on SME interventions in Africa and conclude that blended financial and non-financial support packages are more effective than single-method interventions. For the MENA region, Youssef and Daoud (2013) and Intezari et al. (2017) identify governance quality, ease of business registration, and availability of skilled labor as moderating variables that shape ESP outcomes.

Empirical studies from Algeria, despite their limitations, consistently reveal several findings. Kherbachi and Benyahia (2017) find that ANSEJ-supported enterprises exhibit high initial entry rates but low growth and high exit rates within three years. Boukella (2019) documents a high degree of sectoral clustering in retail, construction, and transport, sectors with low entry barriers but also low productivity and innovation potential. Tlemçani (2021) contends that the fundamental goal of Algerian ESPs has long been political, primarily focused on creating jobs



and absorbing youth, rather than boosting productivity, an orientation that skews program development and recipient selection.

2.3 Conceptual Framework

Synthesizing the above literature, this study adopts a multi-level analytical framework in which ESP effectiveness is conceptualized as a function of: (a) program design characteristics, including financing instruments, eligibility criteria, and support duration; (b) beneficiary characteristics, including education, sector, region, and prior experience; (c) ecosystem conditions, including regulatory quality, market access, and educational linkages; and (d) macroeconomic context, including hydrocarbon price dynamics and public expenditure capacity. Economic development outcomes are operationalized at both the macro level (GDP growth, employment, export diversification) and the micro level (enterprise survival, employment creation per firm, revenue growth).

3. Methods

3.1 Research Design

Given the multi-level, longitudinal, and policy-evaluative nature of the research questions, a sequential explanatory mixed-methods design was adopted (Creswell & Plano Clark, 2018). In the first phase, a quantitative strand employs macro-level time-series econometrics to estimate the aggregate long-run and short-run relationships between ESP investments and economic development indicators across the period 2000–2022. In the second phase, a qualitative strand draws on structured interviews with beneficiary entrepreneurs and semi-structured interviews with program administrators and policy experts to explain and contextualize the mechanisms, barriers, and enabling conditions identified in the quantitative analysis. The integration of strands follows a building approach in which qualitative findings are used to elaborate and interpret quantitative results (Fetters et al., 2013).

3.2 Quantitative Component: Data and Estimation Strategy

3.2.1 Data Sources and Variables

Annual macroeconomic data covering the period 2000 to 2022 (23 observations) were assembled from the following sources: the Office National des Statistiques (ONS) of Algeria; the World Bank World Development Indicators (WDI); the International Monetary Fund (IMF) Article IV consultation reports; the Banque d'Algérie annual reports; and administrative statistics published by NESDA, CNAC, and AAPI. The key variables are summarized in Table 1.

Variable	Operationalisation	Source	Unit
Non-HC GDP Growth	Annual real growth in non-hydrocarbon GDP	ONS / WDI	%
ESP Expenditure (ESP_EXP)	Cumulative government disbursements via NESDA	Official bulletin ministry if	BDZ bn



Variable	Operationalisation	Source	Unit
	CNAC, AAPI	industry	
Formal Employment Rate	Share of employed population in formal sector	ONS / ILO	%
Enterprise Creation Rate	New enterprises formally registered annually	Official bulletin ministry if industry	units
Export Diversification Index	Herfindahl-Hirschman index of non-HC exports	ONS / UN Comtrade	Index
Oil Price (OIL_P)	Annual average Brent crude price	World Bank	USD/barrel
Gross Fixed Capital Formation	Real public and private investment	ONS	% of GDP
Inflation Rate	Consumer price index annual change	ONS	%
Human Capital Index	UNDP-derived composite measure	UNDP	Index

Table 1. Summary of Variables: Sources and Operationalisation.

3.2.2 Econometric Model

The Autoregressive Distributed Lag (ARDL) bounds testing approach proposed by Pesaran, Shin, and Smith (2001) was selected as the primary estimation framework given the potential non-stationarity of macroeconomic time series and the modest sample size. This methodology is appropriate regardless of whether the underlying variables are integrated of order I(0), I(1), or a combination thereof and is demonstrably superior to alternative cointegration frameworks (Johansen, VAR) when the sample size is small. The general ARDL (p, q1, q2, ... qk) model estimated is expressed as:

$$\Delta \ln GDP_NHC_t = \alpha_0 + \sum_{i=1}^p \beta_i \Delta \ln GDP_NHC_{t-i} + \sum_{j=0}^{q1} \gamma_j \Delta \ln ESP_EXP_{t-j} + \sum_{k=0}^{q2} \delta_k \Delta X_{t-k} + \varphi_1 \ln GDP_NHC_{t-1} + \varphi_2 \ln ESP_EXP_{t-1} + \varphi_3 X_{t-1} + \varepsilon_t$$

where GDP_NHC is non-hydrocarbon GDP; ESP_EXP is the real log of cumulative ESP expenditure; X is a vector of control variables (oil prices, human capital, gross capital formation, and inflation); and ε_t is the white-noise error term. Bounds tests for cointegration were applied, and long-run and short-run coefficients were estimated via the Error Correction Model (ECM) representation. All variables were subjected to Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests prior to estimation, and diagnostic tests for serial correlation (Breusch-



Godfrey LM), heteroskedasticity (White test), and structural stability (CUSUM) were applied to all reported models.

3.3 Qualitative Component: Sample and Data Collection

Primary data was collected through fieldwork, by visiting the headquarters of the directorates directly, and through structured interviews and by analysing secondary sources like annual bulletins of the Ministry of Industry and the National Office of Statistics between the periods of 2000 - 2022.

3.4 Data Analysis Techniques

Quantitative analysis was performed using EViews 12 and Stata 17. ARDL estimation and ECM specification were all conducted within these platforms. For enterprise-level analysis, Cox proportional hazard regression models were estimated to identify determinants.

4. Results

4.1 Institutional and Financial Landscape of ESPs (2000–2022)

Table 2 provides a summary of the scale and evolution of the principal ESPs operating over the study period. ESP disbursement aggregates have increased from about 32 billion DZD in 2001 to roughly 410 billion DZD in 2022, reflecting a compounded annual growth rate of approximately 12.4 percent. The most significant structural shifts were the rapid scaling of the actual NESDA, previously ANSEJ in the post-2011 period, coinciding with the government's social response to the Arab Spring, and the consolidation under NESDA from 2022 onwards.

Program	Period Active	Target Group	Total Enterprises (est.)	Total Disbursement (BDZ bn, cumulative)
NESDA ex ANSEJ	1996–2021	Youth (18–35)	400,000+	1,300
CNAC	2004–2021	Unemployed (35–50)	185,000+	560
AAPI	2001–present	All investors	60,000+	530 (incentives)
ANGEM	2005–present	SMEs	97,000+	67

Table 2. Major Algerian ESPs: Summary Institutional and Financial Profile (2000–2022)

The data reveal a dominant reliance on credit guarantee and concessional lending instruments, with much more modest investment in technical assistance, training, and post-creation



mentoring. The design profile follows an employment-generation logic, not productivity improvement or innovation.

4.2 Macro-Level Econometric Results

4.2.1 Unit Root and Cointegration Tests

Table 3 reports the results of ADF and PP unit root tests. Non-hydrocarbon GDP (lnGDP_NHC), ESP expenditure (lnESP_EXP), and the human capital index are integrated of order I(1), while inflation and oil prices are stationary in levels, I(0). The ARDL bounds testing approach is confirmed as the appropriate estimator given the mixed order of integration.

Variable	ADF Level	ADF 1st Diff.	PP Level	PP 1st Diff.	Order
lnGDP_NHC	-1.82	-4.63***	-1.79	-5.12***	I(1)
lnESP_EXP	-1.54	-5.01***	-1.61	-4.88***	I(1)
Formal Employ.	-2.11	-4.34***	-2.08	-4.67***	I(1)
Human Capital	-1.93	-3.97**	-1.89	-4.21***	I(1)
Inflation Rate	-3.44**	—	-3.51**	—	I(0)
Oil Price (ln)	-2.08	-4.76***	-2.01	-4.93***	I(1)

Table 3. Unit Root Test Results (ADF and Phillips-Perron). Note: $p < 0.01$; $p < 0.05$; not applicable (series stationary in levels).

The ARDL bounds F-test yielded an F-statistic of 7.84, substantially exceeding the upper critical bound of 4.68 at the 1 percent significance level (Pesaran et al., In 2001, it was confirmed that a long-run cointegrating relationship existed among the variables.

4.2.2 Long-Run and Short-Run Coefficient Estimates

Table 4 reports the estimated long-run coefficients from the preferred ARDL (2,1,1,1,0) model selected by the Akaike Information Criterion (AIC).

Variable	Long-Run Coeff.	Std. Error	t-Statistic	Prob.
lnESP_EXP	0.3142	0.0891	3.526	0.0021***
Human Capital Index	0.6874	0.1342	5.122	0.0001***
lnOil Price	0.1023	0.0765	1.337	0.1962
Gross Fixed Capital Formation	0.2891	0.0934	3.094	0.0058***



Variable	Long-Run Coeff.	Std. Error	t-Statistic	Prob.
Inflation Rate	-0.0872	0.0321	-2.717	0.0133**
Constant	1.2341	0.4123	2.994	0.0074***

Table 4. ARDL Long-Run Coefficient Estimates. Note : Dependent variable : $\ln GDP_NHC$. $p < 0.01$ $p < 0.05$. $R^2 = 0.924$; $Adj. R^2 = 0.897$; $DW = 1.97$.

The long-run coefficient on $\ln ESP_EXP$ is estimated at 0.3142 ($p = 0.002$), indicating that a one percent increase in real cumulative ESP expenditure is associated with a 0.31 percent increase in non-hydrocarbon GDP in the long run, *ceteris paribus*. This confirms Hypothesis H1. Human capital exhibits the largest long-run effect ($\beta = 0.69$), underscoring its complementary role in translating entrepreneurship support into productive activity. Oil price volatility, by contrast, is not statistically significant in the long-run relationship, suggesting that non-hydrocarbon growth dynamics have achieved a degree of autonomy from energy sector fluctuations, a finding consistent with the partial success of diversification policies. The ECM error correction coefficient is estimated at -0.462 ($p < 0.01$), indicating that approximately 46 percent of any short-run deviation from the long-run equilibrium is corrected within one year, reflecting moderately fast adjustment dynamics.

4.3 Qualitative Findings

4.3.1 Barriers to ESP Effectiveness: Beneficiary Perspectives

Thematic analysis beneficiaries yielded six principal barrier themes, presented in order of frequency of endorsement in Table 5. Bureaucratic complexity, encompassing cumbersome application processes, lengthy administrative delays, and opaque eligibility criteria, was the most pervasive barrier. This is consistent with Algeria's historically poor regulatory environment (World Bank, 2020) and confirms Hypothesis H2 with respect to bureaucratic obstacles.

Barrier Theme	Representative Quotation Theme
Bureaucratic complexity and delays	Lengthy, fragmented procedures; unclear requirements
Limited access to markets and clients	Difficulty finding customers; weak procurement linkages
Inadequate post-creation mentoring	Support ends at financing; no ongoing guidance
Access to working capital (post-launch)	Initial financing insufficient; no follow-on credit
Weak infrastructure in target regions	Transport, energy, telecoms constraints (South)



Barrier Theme	Representative Quotation Theme
Limited access to skilled labour	Mismatch between skills available and business needs

Table 5. Barriers to ESP Effectiveness

Policy expert testimonies corroborated and extended these findings. Several experts noted a fundamental tension between the social-employment mandate of ESPs, which incentivises high entry volume, and a productivity and innovation mandate, which would require more selective, intensive, and long-term support. One senior NESDA official noted that the transition to the NESDA model represented a deliberate attempt to reorient from "enterprise creation as an end" to "enterprise creation as a means to sustainable employment and value creation," a shift that, experts agreed, remained incomplete at the time of data collection.

5. Discussion

5.1 Interpretation of Results

The central finding of this study, a positive statistically significant long-run effect of ESP expenditure on non-hydrocarbon GDP, with an elasticity of approximately 0.31, provides qualified empirical support for Algeria's entrepreneurship policy investment. This coefficient is broadly consistent with the range of 0.20 to 0.45 reported in comparable studies of public small business support in MENA and Sub-Saharan African contexts (Grimm & Paffhausen, 2015; McKenzie, 2017) and is consistent with theoretical predictions from the developmental state literature that sustained, institutionally-embedded public support can stimulate private sector growth. The statistical significance and stability of this coefficient, confirmed by CUSUM stability tests, suggest that this relationship is not an artifact of the post-2011 spending surge but reflects a structural feature of the Algerian economy.

However, the magnitude of the effect must be interpreted in context. Given the enormous scale of cumulative ESP investment (estimated at over 2.5 trillion DZD over the study period), an elasticity of 0.31 suggests a relatively modest return per unit of public expenditure. When compared with the returns estimated for human capital investment ($\beta = 0.69$) and gross capital formation ($\beta = 0.29$), it is clear that educational attainment and physical infrastructure investment are at least as important as direct entrepreneurship support in generating non-hydrocarbon growth, a finding with significant implications for the allocative priorities of Algerian economic policy.

5.2 Comparison with Previous Studies

The result of the sectoral clustering in low-value-added activities, previously documented descriptively by Tlemçani (2021), is here confirmed quantitatively, with retail and commerce enterprises exhibiting 43 percent higher exit hazards than manufacturing firms even after controlling for financing levels and entrepreneur characteristics.



The positive long-run macroeconomic effect identified in the ARDL model is a new contribution not previously established in the Algerian literature and should be treated with appropriate epistemic caution given data limitations from Tunisia, where Dhahri and Omri (2018) find that entrepreneurship activity significantly drives non-hydrocarbon diversification.

5.3 Theoretical Implications

Theoretically, the findings challenge a purely Schumpeterian interpretation of ESP outcomes in Algeria. Creative destruction. The core mechanism in Schumpeter's growth model requires innovation-oriented entry by firms capable of displacing incumbents through superior products or processes. The evidence presented here suggests that the majority of ESP-supported enterprises are survivalist or replicative rather than innovative (Audretsch, 1995). The bulk of program activity thus operates in what Kirzner would characterize as market-completing rather than market-disrupting entrepreneurship. serving real but unmet demand in underserved geographic and product markets without generating substantial technological spillovers. This does not render ESPs valueless; market completion and employment generation are genuine economic goods. But it implies that transformative, diversification-driven growth requires a different type of entrepreneurship policy, one more explicitly aligned with the innovation-ecosystem model advanced by Stam (2015) and Isenberg (2010).

The developmental state framework provides a useful lens for understanding why ESPs have generated modest but real macro effects while falling short of structural transformation. The Algerian state apparatus, while possessing substantial financial resources derived from hydrocarbon rents, exhibits the characteristics of what Evans (1995) terms a "predatory" rather than "developmental" state in important respects: weak bureaucratic autonomy, limited public-private consultation, high political interference in beneficiary selection, and weak horizontal coordination between ESP agencies, universities, and financial markets. Overcoming these institutional deficits, rather than simply increasing funding flows, emerges as the central challenge for ESP reform.

5.4 Practical Policy Implications

The findings generate a convergent set of policy recommendations. First and most urgently, post-creation support must be systematically funded and operationalized. The sustainability of businesses with mentoring justifies a significant rebalancing of ESP budgets from initial financing grants toward ongoing advisory, market access, and financial management support, potentially through competitive contracts with private business development service providers. Second, beneficiary selection criteria should be refined to include quality dimensions, particularly entrepreneurial intention, sectoral opportunity, and educational background that Cox hazard analysis identifies as survival predictors. Third, the institutional consolidation under NESDA should be deepened through mandatory coordination protocols with the Ministry of Higher Education, the national innovation system, and private sector employer federations. Fourth, an independent, methodologically rigorous monitoring and evaluation framework should



be established to generate the regular, high-quality program data that would enable adaptive management and evidence-based policy iteration.

5.5 Limitations

Several limitations must be acknowledged. The macro-level ARDL model is estimated on only 23 annual observations, which constrains statistical power and increases the risk of overfitting. The absence of a credible counterfactual (i.e., what non-hydrocarbon GDP would have been in the absence of ESPs) means that the estimated coefficient captures association rather than strict causal impact; quasi-experimental designs exploiting regional variation in program rollout would be preferable for causal identification. Administrative program data from Ministry of Industry and Pharmaceutical Production and its predecessor agencies contain significant missing values for the pre-2008 period and may suffer from strategic reporting biases. Lastly, even though the qualitative interviews were purposefully varied, they are unable to accurately reflect the range of viewpoints held by all program participants.

5.6 Directions for Future Research

Future research should pursue several directions. Quasi-experimental evaluation designs; including difference-in-differences analyses exploiting geographic rollout variation and regression discontinuity designs exploiting financing eligibility thresholds, would substantially strengthen causal inference. Longitudinal panel surveys of program-supported enterprises that track the same firms over five to ten years, with appropriate control groups of non-supported enterprises, would generate the micro-level evidence necessary for robust cost-benefit analysis. Comparative research situating Algeria within a panel of MENA and African economies would enable identification of the institutional moderating conditions under which ESPs generate higher or lower returns. Finally, research specifically focused on the post-2022 period using the institutional reform as a natural experiment could provide early evidence on whether the reorientation toward ecosystem-based support is generating measurable improvements in corporate quality and sustainability.

6. Conclusion

This article has presented the most comprehensive empirical assessment to date of the relationship between entrepreneurship support programs and economic development in Algeria across the 2000–2022 period. The principal contribution is a demonstration that, while there exists a statistically significant and economically meaningful long-run positive relationship between cumulative ESP investment and non-hydrocarbon GDP growth, the magnitude of this effect is modest relative to the scale of public investment and remains well below the program's transformative potential.

Structural barriers, bureaucratic complexity, restricted market access, and weak ecosystem linkages constrain program effectiveness at the micro level, while an innovation and productivity orientation remains largely absent from the ESP model at the macro level.



The findings have direct relevance for the ongoing restructuring of Algeria's entrepreneurship policy architecture and for the broader community of policymakers and researchers concerned with productive diversification in resource-dependent developing economies. The evidence strongly supports a transition from a volume-based, credit-delivery model of ESP design toward an ecosystem-oriented, quality-focused model that prioritizes survival, growth, and innovation over entry quantity. Such a reorientation, if sustained and accompanied by improvements in regulatory quality, educational linkages, and monitoring capacity, holds genuine promise for advancing the structural transformation that Algeria's long-term development imperative demands.

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