Economic Studies ISSN 1112-7988 / E-ISSN 8627-2710
volume : 26 issue: 01 year : 2026 PP : 57-79

Career Pathway Preferences Among Algerian PhD Holders

Kamel BELHADJ DJILALI , Laboratory of Performance, management and innovation ,School Of Higher Commercial Studies (Algeria), *kamel.bdj.02@gmail.com*

Fatima Zahra BOUKHEDIMI *, Laboratory of Financial and Banking Systems and Macroeconomic Policies in the Face of International Fluctuations, Hassiba Ben bouali University of Chlef, (Algeria),*F.boukhedimi@univ-chlef.dz*

Received: 07/02/2026	Accepted: 06/06/2026	Published: 08/06/2026

Abstract :

This study investigates the career preferences of Algerian PhD holders within structurally constrained labor markets. Using Person–Environment Fit and Self-Concept theories, survey data from 203 PhDs were analyzed with descriptive statistics and chi-square tests. Results indicate a strong preference for academic careers, shaped more by structural limitations than individual choice. Preferences vary by gender, age, marital status, employment, education, and socioeconomic status, while family size and scientific productivity have no significant effect. Non-academic paths, especially entrepreneurship, remain accessible primarily to those with greater resources or prior exposure. This study provides a structural perspective on doctoral career choices in Algeria.

Keywords: Doctoral careers; Career preferences; Structural constraints; PhD holders; Algeria.

* **Corresponding author**: Fatima Zahra BOUKHEDIMI

1.Introduction

Over the past two decades, doctoral education systems worldwide have experienced a structural transformation marked by a rapid increase in the number of PhD graduates alongside a stagnation—or even contraction—of academic employment opportunities. While doctoral training was historically designed to prepare individuals for academic careers, this assumption has become increasingly untenable in many national contexts. Empirical evidence from OECD countries shows a growing mismatch between the supply of doctorate holders and the capacity of academic labor markets to absorb them, leading to prolonged job insecurity, delayed career stabilization, and the diversification of PhD career trajectories beyond academia (Auriol, 2010); (OECD .. , 2020).

In response, many advanced economies have progressively restructured doctoral training systems to promote career diversification. Policy initiatives emphasizing transferable skills, industry collaboration, and entrepreneurial competencies have facilitated PhD transitions into corporate, policy, and innovation-driven sectors (Sauermann H. R., 2016); (Thune, 2018). However, these dynamics are far from universal. In countries characterized by rigid labor markets, strong state dominance in employment, and limited private sector absorption capacity, doctoral career diversification remains constrained, and academic employment continues to dominate career aspirations despite diminishing opportunities.

Algeria represents a particularly salient case of this paradox. Despite a sustained expansion of doctoral education over the last decade, the academic labor market has reached a saturation point. According to official estimates, more than 22,000 doctorate holders remain unemployed or underemployed, while fewer than 1,500 academic positions are opened annually. Yet, paradoxically, academic careers continue to be perceived as the most desirable and legitimate professional pathway for PhD holders. This persistence of academic preference under conditions of structural scarcity raises important questions about the interaction between cultural norms, institutional configurations, and individual career decision-making.

Existing international research on PhD career pathways has largely focused on OECD contexts, where institutional flexibility, industry-academia linkages, and entrepreneurial ecosystems provide viable alternatives to academic employment (Stephan, 2012); (Roach, 2017). By contrast, empirical evidence from Global South and rent-dependent economies remains limited. Where studies do exist, they often emphasize descriptive outcomes rather than the underlying mechanisms sustaining academic preference in constrained labor markets. Consequently, little is known about how structural rigidity,

cultural prestige, and socioeconomic factors jointly shape career preferences among PhD holders in such contexts.

This study addresses this gap by examining career pathway preferences among Algerian PhD holders, with a specific focus on three trajectories: academia, corporate employment, and entrepreneurship. Drawing on Person–Environment Fit Theory (Holland, 1997)and Self-Concept Theory (Super, 1990), the paper analyzes how individual characteristics and structural conditions interact to influence career preferences in a context where traditional academic pathways are increasingly inaccessible. Rather than treating Algeria as a purely descriptive case, this study positions it as a theoretically informative setting that challenges dominant assumptions derived from flexible labor markets. In this context, we formulated the following main question: What are the determinants of career pathway preferences among Algerian PhD holders in a context of structurally constrained and saturated academic employment?

To empirically investigate these questions, the following hypotheses are formulated and tested:

- **H0:** Academic careers constitute the dominant preferred career pathway among Algerian PhD holders, regardless of individual demographic and socioeconomic characteristics.
- **H1:** Gender significantly influences career pathway preferences, with female PhD holders more likely to prefer academic careers due to a stronger valuation of institutional stability and perceived work-life balance.
- **H2:** Age significantly influences career preferences, with younger PhD holders more likely to express a preference for non-academic pathways due to greater tolerance for career risk and experimentation.
- **H3:** Socioeconomic status positively influences preference for entrepreneurship, as higher financial security reduces the perceived economic risks of deviating from established academic career norms.
- **H4:** Marital status significantly influences career preferences, with married PhD holders more likely to prefer academic careers due to a stronger prioritization of job predictability and income continuity.
- **H5:** Current employment status significantly influences career preferences, with PhD holders already employed outside academia more likely to prefer and validate non-academic pathways.
- **H6:** Educational background significantly influences career preferences, with PhD holders in technical and applied disciplines (e.g., engineering, computer science)

showing a stronger preference for corporate and entrepreneurial careers compared to those in fundamental sciences and humanities.

- **H7:** Scientific productivity, as measured by publication output, does not exert a significant independent influence on career pathway preferences among Algerian PhD holders.

This research holds significant theoretical, empirical, and practical value. Theoretically, it rigorously tests established career choice frameworks within the under-explored context of a rigid, state-dominated labor market, challenging their universal applicability and potentially identifying context-specific moderating variables. Empirically, it provides one of the first large-scale, hypothesis-driven quantitative studies on PhD career aspirations in a North African and rentier economy, generating original data to fill a substantial gap in the global literature. Practically, the findings offer critical, evidence-based insights for Algerian policymakers and university leaders. By pinpointing the specific factors that anchor aspirations to academia, the study can inform targeted reforms in doctoral training, career counseling, and national innovation policies to facilitate a sustainable and necessary diversification of PhD careers.

The primary objectives of this study are to:

1. Map and quantify the distribution of career pathway preferences (academia, corporate employment, entrepreneurship) among Algerian PhD holders.
2. Identify and analyze the influence of key individual-level determinants (demographic characteristics, socioeconomic status, professional background, disciplinary training) on career preferences.
3. Test the applicability and explanatory power of established career choice theories in a context of structural constraint and limited labor market alternatives.
4. Generate policy-relevant insights for doctoral education reform and labor market interventions aimed at promoting sustainable career diversification.

This study employs a quantitative, cross-sectional research design with a hypothesis-testing approach. Data were collected via an online survey administered to a purposive sample of 203 Algerian PhD holders through professional networking platforms. The survey instrument operationalized the dependent variable (career pathway preference: academia/corporate/entrepreneurship) and independent variables corresponding to each hypothesis (gender, age, socioeconomic status, marital status, employment status, disciplinary field, scientific productivity). Data analysis employed descriptive statistics to examine preference distributions and chi-square tests of independence to assess

associations between career preferences and independent variables, with effect sizes measured using Cramer's V.

The international literature on PhD career pathways is extensive but geographically concentrated in OECD contexts. Foundational studies have documented the "massification" of doctorate holders and the subsequent push for career diversification in flexible, knowledge-intensive economies (Auriol, 2010); OECD, 2021). Research in these contexts highlights the role of transferable skills, sectoral mobility, and entrepreneurial training (Sauermann H. R., 2016); (Thune, 2018). However, systematic research on doctoral careers in Global South contexts, particularly those with rigid labor markets and strong state employment traditions like Algeria, remains scarce. Existing studies often lack strong theoretical frameworks for hypothesis testing in constrained environments. This study directly addresses this gap by applying a rigorous, theory-informed hypothesis-testing approach to generate novel empirical evidence from an under-researched context.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature on doctoral career pathways and theoretical perspectives on career choice. Section 3 presents the methodology and data. Section 4 reports the empirical results. Section 5 discusses the findings in light of theoretical and policy implications. The final section concludes with recommendations and directions for future research.

2. Theoretical Framework

Understanding career pathway preferences among PhD holders requires moving beyond individual choice models to account for the interaction between individual characteristics and structurally constrained opportunity sets. In labor markets where academic employment is scarce, private sector absorption is limited, and entrepreneurship remains weakly institutionalized, career preferences cannot be interpreted solely as expressions of personal aspiration. Rather, they emerge from the interplay between institutional legitimacy, perceived risk, and access to recognized career pathways.

To capture these dynamics, this study draws on Person–Environment Fit Theory and Self-Concept Theory, while critically acknowledging the limits of these frameworks in contexts characterized by structural rigidity.

2.1 Career Preferences under Structural Constraint

Career preferences are often conceptualized as outcomes of individual aspirations interacting with labor market opportunities. Such models implicitly assume a degree of occupational flexibility and rational adjustment to changing employment conditions. However, in structurally constrained labor markets—characterized by limited absorptive capacity, rigid institutional arrangements, and weak private sector integration—career

preferences cannot be reduced to free individual choice or short-term utility maximization.

In doctoral labor markets, this constraint is particularly pronounced. While doctoral training has historically been oriented toward academic careers, the rapid expansion of PhD production has not been matched by proportional growth in academic employment. Evidence from multiple national contexts shows that academic labor markets have become increasingly saturated, generating prolonged uncertainty and delayed career stabilization for PhD holders (OECD .. , 2020); (Roach, 2017). Yet, paradoxically, academic careers often remain the dominant preferred pathway.

This persistence suggests that career preferences are shaped not only by objective opportunity structures, but by the concentration of legitimacy around institutionally sanctioned trajectories. Academia frequently represents the most socially validated continuation of doctoral training, offering symbolic recognition, credential continuity, and perceived protection against labor market volatility. Corporate and entrepreneurial pathways, by contrast, may be perceived as less legitimate or excessively risky in contexts where industry–academia linkages are weak and entrepreneurial ecosystems remain underdeveloped.

Accordingly, academic preference can be understood as a structural default, reflecting institutional inertia rather than unconstrained choice.

2.2 Person–Environment Fit and Adaptive Career Alignment

Person–Environment Fit Theory posits that individuals seek work environments that align with their skills, values, and expectations, resulting in greater satisfaction and stability (Holland, 1997). In relatively flexible labor markets, this framework explains occupational mobility and sectoral transitions as adaptive responses to opportunity structures. However, in constrained systems, the logic of fit operates under asymmetry: not all environments are equally accessible or institutionally valued.

For PhD holders, academia often represents a high-fit environment not only due to skill alignment, but because doctoral training itself is embedded within academic norms, evaluation systems, and career expectations. This institutional continuity reinforces perceptions of fit even as material returns and employment probabilities decline. In contrast, corporate and entrepreneurial environments may be perceived as low-fit, not because of substantive skill mismatch, but due to weak recognition of doctoral capital, limited recruitment channels, and higher perceived uncertainty.

Importantly, adaptive responses to constraint are unevenly distributed. Demographic characteristics shape how individuals evaluate stability, legitimacy, and risk, producing differentiated career preferences.

2.3 Self-Concept, Symbolic Capital, and Identity Lock-In

While Person–Environment Fit emphasizes adaptation, Self-Concept Theory highlights continuity. According to this perspective, career decisions are shaped by individuals' self-perceptions and socially constructed role expectations developed over time (Super, 1990). Individuals tend to favor career paths that reinforce their established professional identity, even when external conditions change.

Doctoral training plays a central role in the formation of academic identity. Prolonged immersion in research norms, publication metrics, and scholarly evaluation systems reinforces the perception that academic careers represent the most legitimate and prestigious outcome of doctoral education. In contexts where academic titles confer strong social recognition, this identity becomes particularly resistant to reorientation.

This dynamic can be interpreted through the concept of symbolic capital, whereby certain occupational positions confer social legitimacy beyond material rewards (Bourdieu, 1986). Academic positions, in this sense, retain their attractiveness even under conditions of scarcity, generating a form of identity lock-in that limits openness to alternative career pathways.

However, the capacity to deviate from identity-consistent trajectories depends on individuals' material and social resources.

2.4 Structural Exposure and Opportunity Reframing

Career preferences are not shaped by identity alone; they are also influenced by exposure to alternative professional environments. PhD holders who are employed outside academia, or who are trained in applied and technical disciplines, are more likely to perceive corporate and entrepreneurial pathways as viable and legitimate. Such exposure reduces informational asymmetries, weakens exclusive attachment to academic identity, and expands perceived opportunity sets.

Empirical studies indicate that stronger ties between doctoral training and industry increase the likelihood of non-academic career orientation by enhancing skill transferability and reducing uncertainty associated with career transitions (Thune, 2018). Conversely, limited industry–academia interaction reinforces academic enclosure, particularly in disciplines where applied pathways are weakly institutionalized.

2.5 Scientific Productivity and the Limits of Meritocratic Sorting

Academic career models often assume that higher scientific productivity strengthens attachment to academic careers by increasing expected returns. However, in saturated academic labor markets, research output does not necessarily translate into academic employment or career advancement. Empirical evidence suggests that even highly

productive PhD holders face structural barriers to academic entry, weakening the link between merit and opportunity (Roach, 2017); (OECD .. , 2020).

This decoupling challenges meritocratic assumptions and suggests that scientific productivity may no longer function as a decisive factor in shaping career preferences under conditions of persistent academic scarcity.

3. Literature Review

3.1 Global Trends in Doctoral Career Pathways

Over the past two decades, a substantial body of literature has documented a structural transformation in doctoral career trajectories. Historically, doctoral education was primarily oriented toward academic careers, with the implicit assumption that most PhD graduates would transition into faculty or research positions within higher education institutions. However, empirical evidence from advanced economies demonstrates that this model has become increasingly unsustainable due to the expansion of doctoral training systems and the stagnation of academic employment opportunities.

Studies conducted in OECD countries consistently report an oversupply of PhD graduates relative to available academic positions, leading to heightened competition, prolonged postdoctoral phases, and increasing uncertainty in early academic careers (Auriol, 2010); (OECD .. , 2020). As a result, a growing proportion of PhD holders pursue careers outside academia, including roles in industry, government, consulting, and entrepreneurship. This diversification is no longer considered marginal, but rather a structural feature of contemporary doctoral labor markets.

Importantly, the literature emphasizes that this shift is not merely the outcome of individual preference change, but reflects systemic adjustments in labor markets and doctoral training policies. Countries such as the United States, Germany, and several Nordic states have implemented reforms aimed at aligning doctoral education with broader labor market needs, including transferable skills training, industry collaboration, and applied research orientations (Stephan, 2012); (Thune, 2018).

3.2 Preferences versus Outcomes: The Persistence of Academic Orientation

While employment outcomes for PhD holders have diversified, career preferences have not always evolved at the same pace. Several studies highlight a persistent gap between doctoral career aspirations and actual labor market outcomes. Despite declining probabilities of securing academic positions, many PhD candidates and graduates continue to express a strong preference for academic careers.

(Roach, 2017)demonstrate that interest in academic careers has declined over time, yet academia remains the most preferred pathway among doctoral researchers, particularly

at early stages of training. This persistence is partly explained by the structure of doctoral education itself, which socializes candidates into academic norms and reinforces expectations of academic progression. (Sauermann H. R., 2016) further argue that exposure to non-academic careers during doctoral training remains limited, contributing to the continued dominance of academic aspirations even when alternative pathways are available.

The literature thus suggests that career preferences are shaped not only by rational assessments of opportunity, but by institutional socialization processes that privilege academic careers as the normative endpoint of doctoral training. This insight directly supports the theoretical arguments developed in Section 2 regarding structural dominance and identity formation.

3.3 Structural Constraints and the Global South Perspective

Although doctoral career diversification has been widely studied in OECD contexts, evidence from Global South and structurally constrained labor markets remains comparatively limited. Where such studies exist, they indicate that structural rigidities significantly shape both preferences and outcomes.

In many developing and middle-income countries, academic employment remains heavily state-controlled, while private sector demand for doctoral-level skills is limited. This configuration restricts the absorptive capacity of non-academic sectors and reinforces the symbolic and material centrality of academia. Under these conditions, doctoral career diversification is less a matter of choice and more a function of institutional opportunity structures.

(OECD .. , 2020)explicitly notes that the capacity of non-academic sectors to absorb PhD holders varies significantly across national systems, with weaker diversification observed in countries characterized by limited industry–research integration. This observation is consistent with broader analyses of higher education systems operating in contexts of economic dependency and institutional rigidity, where doctoral education expansion is not accompanied by parallel labor market transformation (Stephan, 2012).

Within this perspective, Algeria exemplifies a system in which academic employment retains symbolic dominance despite declining capacity, while alternative career pathways remain weakly institutionalized. The scarcity of empirical studies focusing on such contexts represents a significant gap in the literature, particularly regarding how preferences are formed under conditions of constrained choice.

3.4 Entrepreneurship and Corporate Careers as Conditional Alternatives

The literature on non-academic career pathways often presents entrepreneurship and corporate employment as natural alternatives to academic careers. However, empirical evidence suggests that these pathways are highly conditional and unevenly accessible.

Entrepreneurial careers among PhD holders are strongly mediated by access to financial resources, risk tolerance, and institutional support mechanisms. (Stephan, 2012) emphasizes that scientific human capital alone is insufficient to sustain entrepreneurial success without complementary economic and social capital. Similarly, (OECD .. , 2020)reports that only a minority of PhD holders transition into entrepreneurship, even in systems with relatively strong innovation ecosystems.

Corporate careers, while more prevalent than entrepreneurship, are also shaped by institutional factors. (Thune, 2018)show that strong industry–academia linkages increase the likelihood of non-academic employment by facilitating skill recognition and reducing informational barriers. In systems where such linkages are weak, doctoral skills may remain underutilized outside academia, reinforcing academic preference by default rather than by design.

These findings support the argument that non-academic career pathways cannot be treated as universally available or equally legitimate alternatives. Instead, their viability depends on structural exposure, institutional recognition, and resource availability—factors explicitly integrated into the hypotheses developed in Section 2.

3.5 Research Gap

The reviewed literature establishes three key insights. First, doctoral labor markets worldwide are characterized by increasing academic saturation and growing non-academic employment outcomes. Second, despite this diversification, academic careers remain symbolically dominant within doctoral training systems, sustaining strong academic preferences even under scarcity. Third, the extent to which non-academic pathways are viable varies significantly across national contexts, with structurally constrained systems exhibiting limited diversification.

What remains insufficiently explored is how career preferences are formed and maintained in contexts where academic dominance persists alongside weak non-academic absorption. In particular, there is limited empirical evidence on how demographic, socioeconomic, and institutional factors interact to shape doctoral career preferences in North African and similar settings.

By focusing on Algerian PhD holders, this study addresses this gap and contributes to the literature by examining career preferences not as isolated individual choices, but as outcomes embedded within structurally constrained opportunity sets. In doing so, it

complements existing research on doctoral career diversification and extends its analytical scope beyond OECD-centered frameworks.

4. Methodology

4.1 Research Design and Analytical Approach

This study adopts a quantitative, cross-sectional research design to examine career pathway preferences among Algerian PhD holders. A quantitative approach is appropriate given the study's objective of identifying systematic patterns, testing theoretically derived hypotheses, and assessing associations between career preferences and individual as well as structural characteristics.

The analysis focuses on career preferences rather than observed employment outcomes. This distinction is analytically important in structurally constrained labor markets, where institutional rigidities may prevent individuals from realizing their preferred career trajectories. Examining preferences allows for a more accurate assessment of how perceived opportunity structures, legitimacy, and risk shape career orientations independently of realized employment status.

4.2 Population, Sampling, and Data Collection

4.2.1 Target Population

The target population comprises Algerian PhD holders, irrespective of current employment status, sector of activity, or academic discipline. This inclusive definition is consistent with the study's theoretical framework, which emphasizes differential exposure to academic and non-academic environments as a key determinant of career preferences.

4.2.2 Sampling Strategy

Data were collected using an online survey administered via LinkedIn, a professional networking platform widely used by highly educated individuals. In the absence of a centralized national registry of PhD holders, LinkedIn represents a pragmatic and effective tool for accessing a geographically and institutionally diverse population.

The study employed a purposive non-probability sampling strategy, commonly used in research involving elite or hard-to-reach populations such as doctorate holders. While this approach limits statistical generalizability, it is well suited to theory-driven analysis aimed at identifying relationships between variables rather than producing population estimates (OECD .. , 2020).

A total of 203 complete and valid responses were retained for analysis. Given the categorical nature of the variables and the analytical techniques employed, this sample size is adequate to support both descriptive and inferential analyses.

4.3 Survey Instrument and Variable Operationalization

The survey instrument was designed to align explicitly with the study's theoretical framework and hypotheses (H0–H7). To ensure inclusivity and reduce linguistic bias, the questionnaire was administered in Arabic, French, and English, reflecting the multilingual context of Algerian higher education.

4.3.1 Dependent Variable: Career Pathway Preference

Career pathway preference was measured as a nominal categorical variable. Respondents were asked to indicate their primary preferred career pathway, selecting one of the following mutually exclusive options:

- Academic careers (universities and research institutions)
- Corporate employment (public or private organizations outside academia)
- Entrepreneurship (self-employment or business creation)

This variable operationalizes the Structural Dominance Hypothesis (H0) and serves as the dependent variable across all hypothesis tests.

4.3.2 Independent Variables

Independent variables were selected based on the theoretical framework and operationalized as follows:

- **Gender** (male / female) → H1
- **Age**, categorized into ordered age groups → H2
- **Socioeconomic Status (SES)**, measured through self-reported income level and perceived financial stability → H3
- **Marital Status** (single / married) → H4
- **Employment Status**, distinguishing respondents currently employed within academia from those employed outside academia or unemployed → H5
- **Educational Background**, classified by disciplinary orientation (technical and applied disciplines versus humanities and social sciences) → H6
- **Scientific Productivity**, measured through self-reported research output, categorized into ranges (e.g., no publications, 1–3 publications, more than 3 publications) → H7

These variables capture both individual characteristics and structural exposure, consistent with the study's emphasis on constrained opportunity sets.

4.4 Data Analysis Strategy

4.4.1 Descriptive Analysis

Descriptive statistics were used to examine:

- The overall distribution of career pathway preferences (testing H0)
- The demographic and professional profile of respondents

Frequency distributions and percentage shares were employed to provide a clear overview of observed patterns.

4.4.2 Inferential Analysis

To test associations between career preferences and independent variables, the study employed:

- **Chi-square tests of independence**, appropriate for assessing relationships between categorical variables
- **Cramer's V**, used to evaluate the strength of statistically significant associations

These non-parametric techniques are well suited to the structure of the data and the study's objective of identifying meaningful associations rather than estimating causal effects.

Multinomial regression models were considered; however, given the exploratory nature of the study, the categorical structure of the variables, and the focus on theory testing rather than prediction, chi-square–based analysis was deemed more appropriate and transparent at this stage. Statistical significance was assessed at the **5% threshold ($p < 0.05$)**.

4.5 Validity, Reliability, and Ethical Considerations

4.5.1 Validity and Reliability

Content validity was ensured through close alignment between survey items, theoretical constructs, and hypotheses derived from established career choice literature. While internal consistency metrics are not directly applicable to nominal preference variables, the clarity of question wording and the use of mutually exclusive categories reduced the risk of measurement error.

4.5.2 Ethical Considerations

Participation in the study was voluntary and anonymous. Respondents were informed of the study's purpose and assured that no personally identifiable information would be collected. Data were used exclusively for academic research purposes, in accordance with standard ethical principles in social science research.

4.6 Methodological Limitations

Several limitations should be acknowledged. First, the use of non-probability sampling limits the generalizability of findings beyond the study sample. Second, reliance on self-reported data may introduce response bias. Third, the cross-sectional design does not permit causal inference or the analysis of changes in preferences over time.

These limitations do not undermine the study's analytical contribution but rather delineate avenues for future research employing longitudinal designs, mixed methods, or nationally representative data sources.

5. Results

This section presents the empirical results of the study based on descriptive statistics and chi-square tests of independence. The analysis examines career pathway preferences among Algerian PhD holders and tests the hypotheses formulated in Section 2. Effect sizes are reported using Cramer's V to assess the strength of statistically significant relationships.

5.1 Descriptive Distribution of Career Pathway Preferences (H0)

H0 (Structural Dominance Hypothesis): Academic careers constitute the dominant preferred career pathway among Algerian PhD holders.

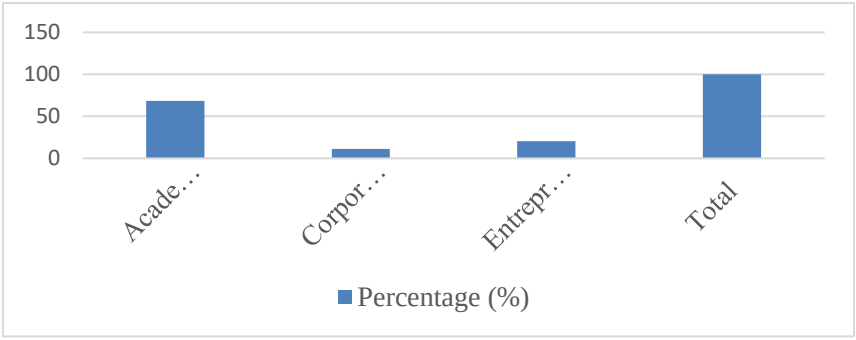
To test H0, descriptive statistics were used to examine the overall distribution of respondents' primary career preferences.

Table 1: Overall Career Pathway Preferences

Career Pathway	**Percentage (%)**
Academic careers	68.4
Corporate employment	11.4
Entrepreneurship	20.3
Total	**100**

Source : Prepared by the authors

Figure 1: Distribution of Preferred Career Pathways Among Algerian PHD Holders



Source : Prepared by the authors

The results indicate a clear dominance of academic career preference among Algerian PhD holders. Entrepreneurship represents a secondary option, while corporate employment is the least preferred pathway. These findings **support H0**, confirming that academia remains the primary reference career despite labor market constraints.

5.2 Gender and Age Effects on Career Preferences

5.2.1 Gender and Career Preferences (H1)

H1: *Gender significantly influences career preferences.*

Table 2. Career Preferences by Gender (%)

Gender	Academic	Corporate	Entrepreneurship
Male	61.0%	15.0%	24.0%
Female	72.0%	10.0%	18.0%
Overall	**68.4%**	**11.4%**	**20.3%**

Source : Prepared by the authors

The distribution shows that female PhD holders display a higher preference for academic careers, while male respondents are relatively more inclined toward entrepreneurship and corporate employment. The chi-square test confirms a **statistically significant association between gender and career preferences**, supporting **H1**.

5.2.2 Age and Career Preferences (H2)

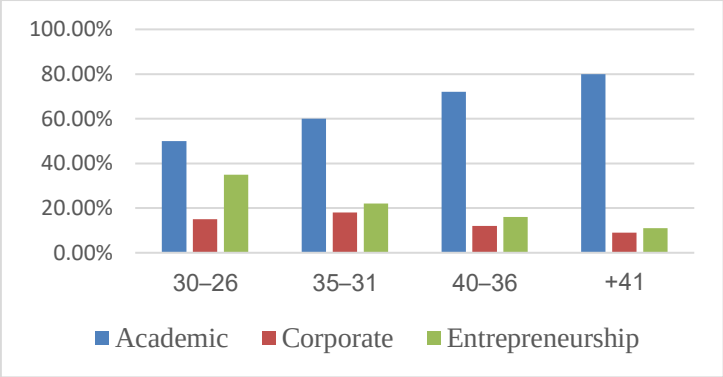
H2: *Age significantly influences career preferences.*

Table 3: Career Preferences by Age Group (%)

Age Group	Academic	Corporate	Entrepreneurship
26–30	50.0%	15.0%	35.0%
31–35	60.0%	18.0%	22.0%
36–40	72.0%	12.0%	16.0%
41+	80.0%	9.0%	11.0%

Source : Prepared by the authors

Figure 2: Career preferences by age group



Source : Prepared by the authors

The results reveal a clear age gradient. Younger PhD holders show stronger preferences for entrepreneurial careers, while older cohorts overwhelmingly favor academic pathways. The chi-square test confirms a **significant relationship between age and career preference**, supporting **H2**.

5.3 Family and Socioeconomic Factors

5.3.1 Marital Status and Career Preferences (H3)

H3: *Marital status significantly influences career preferences.*

The chi-square test reveals a statistically significant association:

- $\chi^2(2) =$ **6.41**
- p = **0.041**
- Cramer's V = **0.29**

Married respondents demonstrate a stronger preference for academic careers compared to single respondents. These results **support H3**.

5.3.2 Family Size and Career Preferences (H4)

H4: *Family size significantly influences career preferences.*

The analysis indicates **no statistically significant relationship** between family size and career preference:

- $\chi^2(8) =$ **12.33**
- p = **0.137**
- Cramer's V = **0.15**

Family size does not appear to play a decisive role in shaping career preferences. Therefore, **H4 is not supported**.

5.3.3 Socioeconomic Status and Career Preferences (H6)

H6: *Socioeconomic status significantly influences career preferences.*

The chi-square test shows a statistically significant association:

- $\chi^2(4) =$ **12.66**
- p = **0.013**
- Cramer's V = **0.27**

Respondents with higher socioeconomic status display a greater preference for entrepreneurship, while those with lower financial security predominantly favor academic careers. These findings **support H6**.

5.4 Employment Status and Educational Background

5.4.1 Employment Status and Career Preferences (H5)

H5: *Employment status significantly influences career preferences.*

The results reveal a statistically significant relationship:

- $\chi^2(6) =$ **15.17**
- p = **0.019**
- Cramer's V = **0.31**

PhD holders employed outside academia are more likely to prefer non-academic career pathways. This finding **supports H5**, highlighting the role of professional exposure.

5.4.2 Educational Background and Career Preferences (H6)

H6: *Educational background significantly influences career preferences.*

The chi-square analysis confirms a significant association:

- $\chi^2(8) =$ **18.56**
- p = **0.017**
- Cramer's V = **0.22**

PhD holders from technical and applied disciplines show stronger preferences for corporate and entrepreneurial careers, while those from humanities and social sciences favor academia. **H6 is supported**.

5.5 Scientific Productivity and Career Preferences (H7)

H7: *Scientific productivity significantly influences career preferences.*

The chi-square test indicates **no statistically significant association** between scientific productivity and career preference:

- $\chi^2(6) =$ **5.30**

- p = **0.506**
- Cramer's V ≈ **0.10**

Scientific productivity does not significantly shape career preferences among Algerian PhD holders. Therefore, **H7 is not supported**.

5.6 Summary of Hypothesis Testing

Table 4: Summary of Results

Hypothesis	Variable	Result
H0	Dominance of academic careers	Supported
H1	Gender	Supported
H2	Age	Supported
H3	Marital status	Supported
H4	Family size	Not supported
H5	Employment status	Supported
H6	Socioeconomic status / Discipline	Supported
H7	Scientific productivity	Not supported

Source : Prepared by the authors

6. Discussion

This study examined career pathway preferences among Algerian PhD holders by situating individual career decision-making within structurally constrained opportunity environments. While Person–Environment Fit Theory and Self-Concept Theory provide useful conceptual tools for understanding how individuals align career aspirations with perceived environments, the findings of this study reveal important limitations of these frameworks when applied to contexts characterized by institutional rigidity, weak non-academic absorptive capacity, and concentrated career legitimacy (Kristof, 1996).

Rather than reflecting unconstrained aspiration or purely self-expressive choice, career preferences in such contexts appear to function as adaptive responses to structurally bounded opportunity sets.

6.1 Academic Career Dominance as a Structural Default

The confirmation of the Structural Dominance Hypothesis (H0) represents a central contribution of this study. Despite well-documented saturation of academic labor markets and limited recruitment capacity, academia remains the overwhelmingly preferred career pathway among Algerian PhD holders. This finding is consistent with international evidence showing persistent academic orientation among doctoral graduates even in systems where academic employment opportunities are objectively constrained (Auriol. L., 2013); (OECD., 2019).

However, the present study extends this literature by demonstrating that academic dominance should not be interpreted simply as an expression of vocational commitment or informational lag. Instead, academic preference appears to operate as a structural default, sustained by institutional legitimacy, symbolic recognition, and the absence of equally recognized non-academic alternatives. In this sense, preference persistence reflects constrained adaptation rather than free choice.

This finding challenges policy narratives that assume doctoral career diversification will emerge organically once academic opportunities decline. Without parallel transformation of institutional recognition mechanisms and non-academic absorptive capacity, preferences are likely to remain anchored to academia despite unfavorable labor market conditions.

6.2 Demographic Differentiation under Structural Constraint

The significant effects of gender (H1) and age (H2) highlight how demographic characteristics mediate exposure to risk, legitimacy, and temporal pressure within constrained labor markets. These effects should not be interpreted as autonomous determinants of career choice, but rather as differentiated responses to structural uncertainty.

Female PhD holders' stronger preference for academic careers appears consistent with evidence suggesting that academia is perceived as offering relatively greater stability and social legitimacy in uncertain labor markets (Fox, 2001) . Rather than reflecting intrinsic preference alone, this orientation may represent a rational response to differential vulnerability in navigating non-academic sectors.

Age-related patterns further reinforce a life-course interpretation of career preferences. Younger PhD holders display greater openness to entrepreneurial and corporate careers, consistent with higher tolerance for experimentation early in professional trajectories (Sauermann, 2012). However, this openness diminishes with age, suggesting a process of structural accommodation, whereby preferences gradually align with perceived opportunity ceilings rather than expanding with accumulated experience.

6.3 Family Formation, Resources, and Risk Distribution

The contrasting effects of marital status (H3) and family size (H4) provide insight into how family-related variables operate under structural constraint. While marital status significantly shapes career preferences, family size does not, suggesting that anticipatory responsibility and social expectations may outweigh actual dependency load in shaping career stabilization strategies.

This distinction highlights the symbolic dimension of career choice, where future-oriented considerations and normative expectations exert greater influence than immediate material constraints. Such findings caution against simplistic interpretations of family effects in career decision-making.

Socioeconomic status emerges as a key enabling factor. The significant association between higher socioeconomic status and entrepreneurial preference supports prior evidence that entrepreneurship is not a universally accessible alternative but a **resource-contingent option** (Blanchflower, 1998); (OECD, 2017). In constrained systems, diversification opportunities are unevenly distributed, reinforcing structural inequalities among PhD holders.

6.4 Structural Exposure and Disciplinary Path Dependence

The significant effects of employment status (H5) and educational background (H6) underscore the importance of structural exposure in reshaping career preferences. PhD holders employed outside academia demonstrate greater openness to non-academic careers, suggesting that direct exposure reduces informational asymmetries and weakens exclusive academic identity formation.

These findings align with research emphasizing the role of institutional linkage between doctoral training and external labor markets (Enders, 2005). Where doctoral socialization remains academically insulated, career preferences may become path-dependent rather than opportunity-driven.

Disciplinary differences further reinforce this argument. Fields with clearer non-academic labor market connections facilitate diversification, while disciplines with weaker institutional bridges remain oriented toward academic reproduction. This suggests that career diversification is shaped less by individual adaptability than by **institutional architecture**.

6.5 Merit, Productivity, and the Limits of Academic Reward

One of the most theoretically consequential findings concerns the absence of a significant relationship between scientific productivity and career preferences (H7). This result challenges meritocratic assumptions embedded in academic labor market discourse, which posit that higher research output strengthens commitment to academic careers.

In structurally saturated systems, productivity does not necessarily expand perceived opportunity sets in proportion to effort. As a result, even highly productive PhD holders may rationally disengage from academic pathways or maintain academic preference without corresponding opportunity optimism. Similar dynamics have been observed in other constrained academic systems (Stephan, 2012); (van der Weijden, 2016).

This decoupling between merit and perceived reward exposes a fundamental tension within academic labor markets and raises questions about the sustainability of productivity-driven incentive structures.

6.6 Theoretical Contributions

This study makes three interrelated theoretical contributions. First, it reframes academic career preference as a structurally induced default rather than an unconstrained individual aspiration. Second, it demonstrates that demographic and socioeconomic factors mediate—but do not override—structural constraints, highlighting the unequal distribution of career risk and opportunity. Third, it challenges individualistic and meritocratic explanations of academic persistence by showing that productivity does not meaningfully reshape career preferences in constrained systems.

By positioning Algeria as a theoretically informative case rather than an exception, the study contributes to broader debates on doctoral labor markets in contexts characterized by institutional rigidity and limited absorptive capacity (Brown, 2011).

6.7 Implications and Future Research Directions

The findings suggest that policies aimed at promoting doctoral career diversification must move beyond individual skill development toward structural reform. Without institutional recognition of non-academic careers, strengthened industry–academia linkages, and reduced structural uncertainty, diversification initiatives risk remaining symbolic rather than substantive.

Future research could adopt longitudinal designs to examine how career preferences evolve as constraints accumulate, as well as qualitative approaches to explore how identity, legitimacy, and risk perception interact in shaping doctoral career decision-making. Comparative studies across similarly constrained systems would further advance understanding of the structural dynamics identified in this study.

7. Conclusion

This study examined career pathway preferences among Algerian PhD holders by moving beyond individual choice models and situating doctoral career decision-making within structurally constrained opportunity environments. Drawing on quantitative evidence and a structurally informed theoretical framework, the findings reveal that academic careers remain the dominant reference pathway, not primarily because of unconstrained aspiration, but due to concentrated institutional legitimacy and limited non-academic absorptive capacity.

The results demonstrate that demographic characteristics, socioeconomic resources, and professional exposure shape how individuals navigate these constraints, but do not

fundamentally alter the underlying structure of opportunity. Preferences for entrepreneurship and corporate employment emerge selectively, largely among those with greater financial security, applied disciplinary backgrounds, or direct exposure to non-academic environments. Importantly, the absence of a significant relationship between scientific productivity and career preferences challenges meritocratic assumptions that underpin academic labor market discourse in saturated systems.

By reframing academic career preference as a structurally induced default rather than a purely individual choice, this study contributes to a more nuanced understanding of doctoral labor markets in contexts characterized by institutional rigidity. In doing so, it extends doctoral career research beyond OECD-centric settings and positions Algeria as a theoretically informative case for examining how legitimacy, risk, and opportunity interact in shaping career orientations.

From a policy perspective, the findings suggest that initiatives aimed at promoting doctoral career diversification must move beyond individual skill enhancement toward structural reform. Without parallel efforts to strengthen institutional linkages, legitimize non-academic doctoral careers, and reduce structural uncertainty, diversification strategies are unlikely to translate into substantive change.

Future research would benefit from longitudinal and mixed-method approaches to capture how career preferences evolve over time and how identity, legitimacy, and risk perception interact in shaping doctoral trajectories. Comparative studies across similarly constrained systems could further advance understanding of the structural dynamics identified in this study.

Bibliographie

Auriol, L. M. (2010). *Careers of doctorate holders: Employment and mobility patterns. OECD Science, Technology and Industry Working Papers, No. 2010/01.* https://doi.org/10.1787/5kmh8phxvvf5-en: , pp 1–67. OECD Publishing.

Auriol. L., M. M. (2013). *Careers of doctorate holders: Analysis of labour market and mobility indicators. OECD Science, Technology and Industry Working Papers,.* https://www.oecd-ilibrary.org/science-and-technology/careers-of-doctorate-holders_5k4dnq2h4jwb-en: No. 2013/04,pp. 1–58. OECD Publishing.

Blanchflower, D. G. (1998). What makes an entrepreneur? *Journal of Labor Economics, 16(1),*, pp.26–60.https://www.journals.uchicago.edu/doi/10.1086/209881.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), Handbook of theory and research for the sociology of education ,. *Greenwood Press.*, pp. 241–258.https://www.jstor.org/stable/2336571.

Brown, P. L. (2011). The global auction: The broken promises of education, jobs, and incomes,. *Oxford University Press.*, pp. 1–224.https://global.oup.com/academic/product/the-global-auction-9780199599402.

Enders, J. (2005). Border crossings: Research training, knowledge dissemination and the transformation of academic work. *Springer.*, pp. 1–320.https://link.springer.com/book/10.1007/1-4020-3509-8.

Fox, M. (2001). Women, science, and academia: Graduate education and careers. *Gender & Society, 15(5)*, pp.654–666.https://doi.org/10.1177/089124301015005004.

Holland, J. L. (1997). Making vocational choices: A theory of vocational personalities and work environments ,3rd ed. *Psychological Assessment Resources.*, pp. 1–303. .

Kristof, A. L. (1996). Person–organization fit: An integrative review. *Personnel Psychology, 49(1)*, pp.1–49.https://doi.org/10.1111/j.1744-6570.1996.tb01790.x.

OECD. (2017). *Entrepreneurship at a Glance 2017*. pp. 1–104.https://www.oecd.org/industry/business-innovation/entrepreneurship-at-a-glance-22266941.htm: OECD Publishing.

OECD, .. (2020). *Careers of doctorate holders: A global perspective on doctoral education.* pp. 1–252.https://doi.org/10.1787/9ff1d748-en: OECD Publishing.

OECD. (2019). *Education at a Glance 2019.* pp. 1–474.https://www.oecd.org/education/education-at-a-glance/: OECD Publishing.

Roach, M. &. (2017). The declining interest in an academic career. *Research Policy, 46(3)*, pp.691–709.https://doi.org/10.1016/j.respol.2016.11.004.

Sauermann, H. &. (2012). Science PhD career preferences: Levels, changes, and advisor encouragement. *PLoS ONE, 7(5), e36307*, pp. 1–13.https://doi.org/10.1371/journal.pone.0036307.

Sauermann, H. R. (2016). Why pursue the postdoc path? *Science, 352(6286)*, pp.663–664.https://doi.org/10.1126/science.aaf7780.

Stephan, P. E. (2012). How economics shapes science. *Harvard University Press.*, pp. 1–356.https://www.hup.harvard.edu/books/9780674060068.

Super, D. E. (1990). A life-span, life-space approach to career development. In D. T. Hall (Ed.), Handbook of career theory . *Cambridge University Press.*, pp. 197–214.

Thune, T. R. (2018). Ties to industry and employment prospects of doctorate holders. *Research Policy, 47(8)*, pp.1510–1524.https://doi.org/10.1016/j.respol.2018.05.017.

van der Weijden, I. T. (2016). Career satisfaction of postdoctoral researchers. *Higher Education, 72(4)*, pp. 1–18.https://doi.org/10.1007/s10734-015-9940-1.