Exploring Impostor Phenomenon among Entrepreneurs



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While entrepreneurs are often perceived as highly confident, many contend with Impostor Phenomenon (IP), experiencing self-doubt despite demonstrable achievements. This interdisciplinary study investigates the antecedents of IP, examining its influence on financial decision-making. Analysis of 153 entrepreneurs reveals that limited education, experience, and social capital contribute to IP, subsequently shaping financing behaviors. Significantly, 47% of entrepreneurs report frequent to intense IP, leading them to rely on personal savings over external funding sources. However, robust social networks and accessible funding opportunities can mitigate these adverse effects, suggesting potential avenues for addressing IP-related challenges.

Keywords: Entrepreneurs, Impostor Phenomenon, Human Capital, Social Capital, Finance

1. Introduction

"Very few people, whether you've been in that job before or not, get into the seat and believe today that they are now qualified to be the CEO. They're not going to tell you that, but it's true" - Howard Schultz (American businessman and longtime CEO and chairman of Starbucks)

Every time I took a test, I was sure that it had gone badly. And every time I didn't embarrass myself -- or even excelled -- I believed that I had fooled everyone yet again. One day soon, the jig would be up" – Sheryl Sandberg (longtime COO of Meta Platforms and founder of LeanIn.org)

The two quotes above are held by accomplished entrepreneurs and a distinguished scientist who have achieved the highest level of success in their fields. Despite their actual accomplishments and recognition, the feeling that their capabilities have been overstated and that they will someday be exposed as frauds and unable to internalise their success is called the Impostor Phenomenon (IP) (Clance & Imes,1978). Surveys reveal that they are not alone in experiencing IP. An International Journal of Behavioural Science study found that approximately 70% of high-achieving people experience impostor syndrome at some point in their lives. According to a study in the US, nearly 84% of business owners are currently affected by the ailment known as the entrepreneurial impostor phenomenon making them feel that they are inadequate (Clance, 1985) and lack confidence even though they are officially regarded as capable and competent because of their educational or professional achievements and qualifications.

"Sometimes I'm afraid others will discover how much knowledge or ability I really lack."

"I'm disappointed at times in my present accomplishments and think I should have accomplished much more."

The statements above are based on items from the Clance IP Scale, introduced by P.R. Clance in 1985, reflecting the inner thoughts shared by these renowned celebrity entrepreneurs mentioned above. They have openly expressed these feelings in interviews or on social media, underscoring that they, too, have battled with self-doubt and a sense of inadequacy. While the prevailing narrative around the impostor phenomenon tends to highlight its detrimental effects like low self-esteem, stress, depression (Clance & Imes, 1978), recent studies and discussions have sought to rebalance this perspective by recognizing potential positive outcomes like interpersonal relationships or interpersonal effectiveness (Tewfik, 2022).

After examining the contrasting perspectives on the impostor phenomenon, one that emphasizes its traditionally negative impact and another that highlights its potential benefits, there arises a need to explore how this psychological experience operates within the context of the innovation ecosystem. The innovation ecosystem is characterized by the network of organizations, individuals, and resources involved in the creation and commercialization of new products, services, and technologies (Chesbrough, 2003), in which the impostor phenomenon might manifest differently. These individuals often face intense pressure to innovate, disrupt markets, and drive technological advancements. The question arises: does the impostor phenomenon affect their decision-making ability?

Moreover, it is crucial to consider whether the intensity of the impostor phenomenon varies among individuals with differing levels of resources. Entrepreneurs with abundant resources, be it financial capital, social networks, or access to advanced technology, might experience the impostor phenomenon differently compared to those with fewer resources. For those with limited resources, the impostor phenomenon could potentially exacerbate feelings of inadequacy, leading to higher stress levels and a greater fear of failure. On the other hand, individuals with more resources might use their impostor feelings as a driving force to leverage their advantages more effectively.

Exploring these dynamics could provide valuable insights into how entrepreneurs and inventors navigate the challenges of innovation, how they perceive their capabilities in relation to their resources, and ultimately, how these factors influence their financial decision-making. This exploration could also inform strategies to help individuals harness the positive aspects of the impostor phenomenon while mitigating its potential downsides, leading to a more supportive and productive innovation environment.

2. Objectives and Hypothesis

The concept of human capital has long been recognized as a critical determinant of productivity and income, as first emphasized by Becker (1964), who argued that investments in education, training, and skills directly contribute to an individual's economic potential. In more recent work, Villwock et al. (2016) noted an intriguing paradox: while professionals with extensive training and expertise are expected to be confident in their roles, many experience pervasive self-doubt, often feeling like "frauds" despite their accomplishments. This sense of inadequacy aligns with the impostor phenomenon, which Clance and Imes (1978) defined as the internal experience of doubting one's capabilities despite external success. Their work suggests that even individuals who possess significant achievements may still struggle with feelings of intellectual phoniness, fearing exposure as "impostors." While the links between human capital and entrepreneurial outcomes are well-documented, research specifically examining the impostor phenomenon among entrepreneurs remains limited. This study addresses this gap by exploring how human capital elements within the innovation ecosystem influence impostor feelings among entrepreneurs, providing new insights into the psychological complexities of high-achieving individuals in entrepreneural roles.

Objective 1: To identify the elements of human capital which can influence IP.

H1a: The distribution of IP is different across categories of training received.

H1b: The distribution of IP is different across categories of educational backgrounds.

H1c: The distribution of IP is different across categories of higher education

H1d: The distribution of IP is different across levels of total experience.

Another element of innovation ecosystem is social capital. Social capital theory emphasizes the importance of networks in accessing resources and translating social relationships into power and economic gain (Bourdieu, 1985) and the author argued that social networks play a pivotal role in mobilizing resources, enabling individuals to leverage connections for economic and professional advantages. Expanding on this idea, Granovetter's (1973) "strength of weak ties" theory posits that diverse and expansive networks create broader opportunities. In the entrepreneurial context, social network characteristics—such as support services, access to mentors, and role models—have been shown to shape leaders' experiences, as noted by Aparna and Menon (2020). Conversely, the absence of these resources, or incubators, may heighten feelings of inadequacy and impostor syndrome, as observed by Ewing et al. (1996). Although research has established a link between social capital and entrepreneurial success, few studies have explored the direct relationship between social capital and impostor feelings in entrepreneurs. This study aims to bridge this gap by examining how limitations in social resources, such as incubator association, may influence impostor phenomenon experiences, thus providing new insights into the social dimensions of entrepreneurial self-perception. Objective 2 - To identify the elements of social capital which can influence IP.

Objective 2 - To identify the elements of social capital which can influence IP.

H2a: The distribution of IP is different across <u>levels of connections</u> entrepreneurs have.

H2b: The distribution of IP is different across categories of incubator-based entrepreneurs.

H2c: The distribution of IP is different across frequency of advice sought.

H2d: The distribution of IP is different across categories of intellectual property support.

Behavioral finance provides valuable insights into the risk preferences and decision-making biases of entrepreneurs, especially under uncertainty. Kahneman and Tversky's (1979) Prospect Theory suggests that individuals, including entrepreneurs, tend to make risk-averse financial choices when faced with ambiguity, often prioritizing security over potential gain. This risk aversion may be amplified in entrepreneurs experiencing impostor feelings, as they may have lower self-efficacy and heightened doubts about their financial competence, leading them to avoid external financing in favor of personal savings (Zafar, 2022). Limited access to financial resources and support services, as discussed by Ewing et al. (1996), can exacerbate this tendency, as entrepreneurs may feel even more inadequate in the absence of accessible funding options. Although behavioral finance literature has addressed general financial decision-making biases among entrepreneurs, the specific link between impostorism and financing challenges—such as reluctance to seek venture capital or other forms of external funding —remains under-explored. This study aims to address this gap by examining how impostor phenomenon experiences impact entrepreneurs' financial choices, particularly in relation to external funding, thereby adding depth to the understanding of psychological factors influencing entrepreneurial finance.

Objective 3: To identify if IP influences the financing decisions of an entrepreneur.

H3a: The distribution of IP is different across financial sources of entrepreneurs.

H3b: The distribution of IP is different for entrepreneurs with and without difficulty in securing external funding.

3. Data Specification

3.1 Scope and Data Sources

We created a sample of 153 entrepreneurs working in diverse areas. Specifically, participants come from sectors including Artificial Intelligence (AI) and Deep Technology, Biotechnology and Healthcare, Agriculture and Agri-tech, Sustainability and

Renewable Energy, Manufacturing and Industrial Technology, Wearable Technology, as well as Security and Access Management. This range of industries captures the unique pressures and dynamics that entrepreneurs face across different technological and innovation-intensive fields. The research aims to encompass the regional diversity of the innovation landscape by drawing participants from a variety of locations within India. Indian regions included Maharashtra, Karnataka, Orissa, Kerala, Tamil Nadu, Delhi NCR, Rajasthan, Uttar Pradesh, Himachal Pradesh, Gujarat, and Madhya Pradesh. To ensure a well-rounded and representative sample, data was sourced from multiple databases tailored to innovation and entrepreneurship. These databases include the Best Cluster Bengaluru, which serves as a network hub for technology and innovation stakeholders in Bengaluru, and the Bengaluru Tech Summit Directory, a directory from an annual technology summit that gathers industry leaders. Additional sources include Zaubacorp, a corporate database for information on Indian businesses; Startup India, a government-backed initiative supporting Indian startups; and LinkedIn, used to identify and reach out to entrepreneurs by sector and expertise. Using these resources helped to secure a diverse sample of participants relevant to the study's focus.

Data was collected through a combination of structured surveys and semi-structured interviews to achieve both quantitative and qualitative insights from entrepreneurs. Surveys offered a quantifiable foundation to measure variables, while interviews allowed for a more nuanced understanding of personal experiences and contextual factors. This mixed-method approach was applied over a four-month period, from May 2024 to August 2024, providing an ample timeframe to gather comprehensive data.

We created a preliminary questionnaire based on our inputs gathered from prior literature. Therefore, a detailed list of the variables and how they are measured is provided in Table To minimize potential biases associated with the survey instrument, we explicitly stated at the beginning of the questionnaire, as well as in all accompanying emails sent to the founders, that no personally identifiable information would be collected. We also clarified that the data would be used solely in aggregated form for analysis.

3.2 Variables

In this research, the primary variables are categorized into dependent and independent variables across three domains: human capital, social capital, and financial capital. The dependent variables include Impostor Phenomenon (IP) with IP measured through six statements taken from Clance IP Scale (Clance 1985), rated on a Likert scale from 1 (low) to 5 (high), capturing varying degrees of impostor feelings, and Source of Finance (FS) which indicates whether funding is personal or external.

Among the independent variables, human capital includes factors like Educational Background (EB), Highest Education Level (HE), Total Experience (TE), and Training Received (TR). EB is classified into fields of study, with values assigned based on scientific, engineering, or management backgrounds. HE ranges from undergraduate to postdoctoral levels. TE is a continuous variable, while TR is a binary variable indicating whether training was received.

Variables	Definition	Measurement
Dependent variables IP	Impostor phenomenon	6 statements, Equal to the value indicated on a Likert scale measurement where 1 indicates low and 5 indicates high
TP	Total performance	Based on profitability, new products, intellectual property,
Independent variables Human Capital		prototype, potential of ninovation, awards
EB HE TE TR	Prior educational background Highest level of education Total experience Training received	Equal to 1 if sci., 2 if engineering., 3 if mgmt, 4 otherwise Equal to 1 if UG, 2 if PG, 3 if PhD, 4 if Postdoe 4, 5 other Continuous variable Equal to 1 if training received, 0 otherwise
Social Capital		
NC IB AS	No. of connections Incubator based Frequency of advice sought	Continuous variable Equal to 1 if the business is incubator based, 0 otherwise 3 statements, Equal to the value indicated on a Likert scale measurement where 1 indicates low and 5 indicates high
IPRS	Intellectual property support	Equal to 1 if yes, 0 otherwise
Independent variables Financial Capital		
FS DF	Source of finance Difficulty in securing funds	Equal to 1 if personal saving, 0 otherwise Equal to 1 if yes, 0 otherwise
IP	Impostor phenomenon	6 statements, Equal to the value indicated on a Likert scale measurement where 1 indicates low and 5 indicates high

Table 1 List of Variables

Social capital factors comprise Number of Connections (NC), Incubator-Based (IB) status, Frequency of Advice Sought (AS), Intellectual Property Support (IPRS). NC is a continuous variable indicating network size, while AS uses a three-statement Likert scale to assess advice-seeking frequency. IB and IPRS are binary variables, indicating the presence or absence of incubator affiliation, IPRS respectively.

Lastly, one factor of financial capital variables includes Difficulty in Securing Funds (DF) while DF measures if obtaining funds was challenging. This structured variable framework allows for a comprehensive examination of factors influencing the impostor phenomenon and performance among entrepreneurs and inventors.

A detailed list of the variables and how they are measured is provided in Table 1.

3.3 Descriptive Statistics

Table 2 categorizes IP scores among entrepreneurs, highlighting the distribution across four intensity levels. A small portion of entrepreneurs, 13.33%, exhibit minimal impostor feelings (0-40%), while the largest group, at 40%, experiences a moderate level of IP (41-60%). This suggests that many entrepreneurs occasionally deal with impostor feelings but not at an overwhelming intensity. Additionally, 36% of entrepreneurs report frequent IP (61-80%). A smaller segment, 10.67%, falls within the intense category (81-100%), showing a persistent and deep-seated experience of impostorism. This distribution reveals that most entrepreneurs experience IP to some degree, with moderate to frequent levels being especially prevalent. Understanding these variations can guide the design of support mechanisms tailored to the different levels of impostor experiences among entrepreneurs.

The sample of 153 entrepreneurs included 107 males and 46 females, reflecting the male-dominated nature of the profession. The average age of respondents was 39.65 years. A majority (64.7%) fell within the 31-50 age range, with 33.33% aged between 31-40 years and 31.37% between 41-50 years. This age distribution suggests that entrepreneurship is most common among individuals in mid-career stages.

Table 3 reports the bivariate correlations of the variables used in the analysis.

IP Score (in %)	Impostor Phenomenon	Entrepreneurs
0-40	Few	13.33%
41-60	Moderate	40%
61-80	Frequent	36%
81-100	Intense	10.67%

 Table 2 Intensity Levels of IP Among Entrepreneurs

	IP	EB	HE	ТЕ	TR	AS	IPRS	IB	NC	DF	FS
IP	1										
EB	-0.076	1									
HE	-0.009	237**	1								
TE	508**	-0.023	0.158	1							
TR	-0.025	0.051	0.072	0.017	1						
AS	0.077	.187*	285**	228**	-0.081	1					
IPRS	-0.043	-0.112	.274**	0.109	.171*	179*	1				
IB	368**	0.030	-0.064	.335**	-0.005	-0.031	.276**	1			
NC	665**	-0.027	0.055	.401**	0.076	-0.141	0.085	.244**	1		
DF	.536**	-0.036	0.031	373**	-0.082	.208**	-0.006	212**	416**	1	
FS	.473**	-0.158	0.005	171*	-0.154	0.148	-0.140	282**	304**	.424**	1

Table 3 Correlation Matrix

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4. Methodology

4.1 Measure

For measuring IP, we adapted 6 statements as outlined by Simon and Choi (2017), out of 20 statements of Clance Impostor Phenomenon Scale (Clance, 1985), targeting specific aspects of impostor-related perceptions. According to Simon and Choi (2017), IP is explained through three dimensions: luck, fake, and discount. For our study, items 5 and 11 measure the concept of "luck," capturing the belief that achievements result from external factors rather than personal ability. Items 13 and 2 (replacing item 6 in Simon and Choi's model) assess the "fake" dimension, reflecting a fear of being perceived as more competent than one actually feels. Items 15 and 19 address the "discount" aspect, where individuals undermine or devalue their accomplishments. The substitution of item 2 instead of item 6 offers a slightly different angle on the "fake" dimension, focusing on self-presentation and perceived competence, which may align closely with entrepreneurial contexts. This adapted scale allows for a nuanced examination of impostor tendencies relevant to our research context, maintaining the original dimensions while reflecting unique implications for perceived competence and achievement. One example is "I feel my achievements have been due to some kind of luck."

4.2 Statistical Tests

To assess potential multicollinearity issues among the variables, we calculated the Variance Inflation Factor (VIF). We used KMO, Barlett's test of sphericity, Total Variance Explained & Reliability.

A combination of statistical methods was employed to analyze the relationship between the IP and various factors of human, social, and financial capital. First, t-test and One-way ANOVA were conducted to compare IP levels across different categories of independent variables: the t-test was used for dichotomous variables, while ANOVA was applied to variables with multiple categories. Correlation analysis was performed to assess the relationship between continuous independent variables and IP. Additionally, a binary logistic regression was used to examine the relationship between IP and types of funding sources, comparing personal savings and external funding. These methods provided a comprehensive approach to understanding how distinct types of capital influence the Impostor Phenomenon.

5. Results and Discussions

T.L.L. 4 17

Table 4 variance inflation Factor					
Independent Variables	VIF				
EB	1.142501				
HE	1.185971				
TE	1.678792				
TR	1.070424				
NC	2.671936				
AS	1.051019				
IPRS	1.195072				
FC	1.547702				
DF	1.512849				

To examine any issues about multicollinearity related to all the variables under consideration, we used the variance inflation factor (VIF). The VIF value for all the variables was found to be **less** than 2.672 as given in Table 4, suggesting that

5.2 Factor Analysis

multicollinearity is not a significant concern (Hair et al., 2010).

5.1 Multicollinearity Test

Table 5 provides factor loadings and "Alpha if item deleted" values for items measuring the Impostor Phenomenon (IP). The overall Cronbach's alpha for IP scale is 0.762, indicating acceptable internal consistency. The factor analysis explains 65.334% of the variance, with a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of 0.807, suggesting that the sample size is sufficient for factor analysis. Additionally, Bartlett's test of sphericity is significant, indicating that the correlation matrix is suitable for factor analysis.

Examining individual items, all factor loadings are relatively high, ranging from 0.649 to 0.802, except for IP6, which has a loading of 0.040. This low loading suggests that IP6 does not correlate well with the underlying construct of impostor phenomenon compared to the other items. Furthermore, removing IP6 would increase Cronbach's alpha to 0.815, strengthening the internal consistency of the scale. Based on these results, we will delete IP6 from the scale to improve both the reliability and construct validity of the measure.

5.3 Empirical Analysis

In the analysis for Objective One, which aimed to examine the relationship between human capital factors - including Training (TR), Educational Background (EB), Higher Education (HE), and Total Experience (TE) and the Impostor Phenomenon (IP) as the dependent variable, ANOVA results revealed a statistically significant impact of Higher Education (HE) on IP. Specifically, the F-value of 4.419 (p = 0.005) indicates a significant variation in impostor phenomenon levels across different education levels. Tukey's HSD post hoc analysis further indicated that entrepreneurs with lower levels of education report significantly higher levels of impostor feelings compared to those with advanced educational backgrounds.

Additionally, a correlation analysis between TE and IP demonstrated a strong negative association, with a correlation coefficient of -0.508 (p = 0.000). This result implies that increased professional experience is associated with reduced impostor feelings among entrepreneurs. Conversely, no significant relationships were found between IP and either TR or EB.

Table 5 Fuctor Analysis and Kendoliny						
Impostor Phenomenon	Factor Loadings	Alpha if item deleted				
IP1	.802	.704				
IP2	.649	.716				
IP3	.738	.709				
IP4	.773	.706				
IP5	.795	.693				
IP6	.040	.815				

 Table 5 Factor Analysis and Reliability

For Objective Two, which focused on identifying the relationship between elements of social capital - Number of Connections (NC), Frequency of Advice Sought (AS), Incubation-Based Status (IB), and Intellectual Property Support (IPRS) and the Impostor Phenomenon (IP), correlation and t-test analyses were conducted on these social capital factors and IP. The analysis found a significant negative correlation between NC and IP (r = -0.665, p = 0.000), suggesting that entrepreneurs with more connections experience lower impostor feelings. However, AS showed only a weak positive correlation with IP (r = 0.077, p = 0.344), which was not statistically significant, indicating no substantial relationship between advice-seeking frequency and impostor feelings.

T-tests showed significant differences in IP based on IB, with t-values of 5.993 (p = 0.000) and 4.859 (p = 0.000), respectively. Entrepreneurs affiliated with incubators reported lower impostor phenomenon scores compared to those not associated with incubators with a mean difference of 3.35.

For Objective Three, which aims to assess whether the Impostor Phenomenon (IP) influences the financing decisions of entrepreneurs, two hypotheses were tested. The first hypothesis examined whether the distribution of IP varies based on difficulty in securing external funding. A t-test analysis was employed to compare IP levels between entrepreneurs who reported difficulty in obtaining external funding and those who did not. The t-test yielded a t-value of -7.799 (p = 0.000), indicating a statistically significant difference in IP scores between the two groups, with a mean difference of -5.04. Entrepreneurs experiencing higher IP reported significantly more difficulty in securing external financing.

Table 7 Classification Table ^a								
	Predicted							
	Ob	served	FS		Democrate as Compost			
		.00	1.00	Percentage Correct				
	ES	.00	58	18	76.3			
Step 1	гэ	1.00	24	53	68.8			
	Overall			72.5				
a. The cut value is .500								

 Table 8 Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Star 12	IP	1.278	.241	28.109	1	.000	3.590
Step 1ª	Constant	-3.695	.717	26.598	1	.000	.025
a. Variable(s) entered on step 1: IP.							

The second hypothesis posited that the distribution of IP is similar across financial sources (personal savings versus external funding), with the expectation that higher IP levels would incline entrepreneurs toward personal savings as their preferred funding source. To test this, a binary logistic regression analysis was conducted, with IP as the predictor variable and Funding Source (FS) (personal savings vs. external funding) as the binary dependent variable. The logistic regression as shown in Table 6 and Table 7 results reveal that IP significantly influences financing preferences (B = 1.278, SE = 0.241, Wald = 28.109, p = 0.000), with an odds ratio (Exp(B)) of 3.590. This suggests that higher IP is associated with a 3.59 times greater likelihood of entrepreneurs relying on personal savings rather than external funding sources. These findings suggest that IP plays a role in shaping financing decisions and access challenges among entrepreneurs.

The summary of our hypothesis outcomes is presented in Table 8 below.

Table 8 Hypotheses Outcomes

Hypothesis	Hypothesis Outcome
Human Capital	
H1a: The distribution of IP is different across categories of EB	Not Supported
H1b: The distribution of IP is different across categories of HE	Supported
H1c: The distribution of IP is different across TE	Supported
H1d: The distribution of IP is different across categories of TR	Not Supported
Social Capital	
H2a: The distribution of IP is different across categories of NC	Supported
H2b: The distribution of IP is different across categories of IB	Supported
H2c: The distribution of IP is different across categories of AS	Not Supported
H2d: The distribution of IP is different across categories of IPRS	Not Supported
Financial Capital	
H3a: The distribution of IP is different across categories of FS	Supported
H3b: The distribution of IP is different for entrepreneurs with and without DF	Supported

6. Conclusion

This study offers a comprehensive analysis of the Impostor Phenomenon (IP) within the entrepreneurial context, revealing critical connections between personal and social resources and financial decision-making behaviors. Despite being perceived

as resilient and self-assured, nearly half of the entrepreneurs studied report frequent or intense IP, a finding that underscores the pervasive nature of self-doubt among high achievers in innovative fields. The data illustrate that entrepreneurs with limited education, experience, and social capital are particularly susceptible to IP, which in turn influences their preference for self-funding over external financing due to concerns about perceived competence.

Furthermore, the findings highlight how robust social networks and accessible financial resources can act as buffers against IP, offering valuable implications for policymakers and stakeholders within the innovation ecosystem. Initiatives that enhance social capital, such as mentorship programs and accessible incubators, can help mitigate the adverse effects of IP, ultimately supporting entrepreneurs in making more balanced financial decisions. This study's interdisciplinary approach, bridging psychology with entrepreneurial finance, provides a unique lens to understand and address the complex psychological barriers that influence entrepreneurial financing decisions. These insights contribute to the growing discourse on IP in entrepreneurship and suggest pathways for fostering a more inclusive and supportive environment for entrepreneurs who grapple with self-doubt.

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