

# UNEMPLOYMENT AND ENTREPRENEURSHIP IN THE COVID-19 PANDEMIC AND ITS EFFECTS ON BRAZILIAN SOCIETY

## *DESEMPREGO E EMPREENDEDORISMO NA PANDEMIA DA COVID-19 E SEUS EFEITOS NA SOCIEDADE BRASILEIRA*

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### ABSTRACT

**Purpose** - This research aimed to analyze the relationship between unemployment and entrepreneurship in Brazil, from 2016 to 2021, focusing on the COVID-19 pandemic.

**Design/methodology/approach** - Quantitative, descriptive research, using the survey method, through the IBGE, GEM and Entrepreneur Portal databases. The data were arranged through descriptive and inferential statistics.

**Findings** - There was a growth behavior over time, with main emphasis on the pandemic period, with an increase of 14% in unemployment, 23% in initial entrepreneurship, and 94% in active IMEs (Individual Micro-Entrepreneur). However, unemployment and initial entrepreneurship displayed little association, demonstrating that entrepreneurship in Brazil has much more important relationships with other factors. On the other hand, initial entrepreneurship and the amount of active IMEs showcased a strong relation, to the point that, for every 5 new initial entrepreneurs in the Brazilian market, 1 IME is formalized.

**Limitations** - Use of quantitative research solely, disregarding the use of qualitative analyses, which would make it possible to identify factors that actually influence entrepreneurship.

**Originality/value** - The research exposed, as a great discovery, that there is no relation between unemployment and entrepreneurship in the pandemic period in Brazil, unlike previous scientific and professional studies that claim the existence of such link, opening, therefore, a new perspective on the motivations to start a business in the country.

**Keywords:** Unemployment; Entrepreneurship; Individual Micro-Entrepreneur; COVID-19 pandemic.

## RESUMO

**Finalidade** - O presente estudo objetivou analisar a relação entre desemprego e empreendedorismo no Brasil, no período de 2016 a 2021, com enfoque na pandemia da COVID-19.

**Design/metodologia/abordagem** - Trata-se de pesquisa quantitativa, descritiva, utilizando o método de levantamento, através das bases de dados do IBGE, do GEM e do Portal do Empreendedor. Os dados foram tratados por meio da estatística descritiva e inferencial.

**Descobertas** - Constatou-se um comportamento de crescimento, ao longo do tempo, com mais ênfase no período pandêmico, com aumento de 14% de desemprego, 23% de empreendedorismo inicial e 94% de MEIs ativos. Entretanto, o desemprego e o empreendedorismo inicial apresentaram baixa associação, demonstrando que o empreendedorismo no Brasil sofre relações muito mais importantes com outros fatores. Por outro lado, o empreendedorismo inicial e o número de MEIs ativos apresentaram forte relação, a ponto de, a cada 5 novos empreendedores iniciais no mercado brasileiro, ter-se a formalização de 1 MEI ativo.

**Limitações** - Utilização apenas da pesquisa quantitativa, desconsiderando o uso de análises qualitativas, que possibilitariam identificar os fatores que realmente influenciam no empreendedorismo.

**Originalidade/valor** - A pesquisa trouxe como grande descoberta que não há relação entre desemprego e empreendedorismo no período pandêmico no Brasil, diferentemente de análises científicas e profissionais anteriores que afirmam haver tal vínculo, abrindo, portanto, uma nova visão sobre as motivações de empreender no país.

**Palavras-chaves:** Desemprego; Empreendedorismo; Microempreendedor individual; Pandemia da COVID-19.

## 1 INTRODUCTION

The pandemic caused by the new coronavirus established a completely new scenario, derived from a severe health crisis that provoked an economic crisis arisen from social distancing measures, fundamental for the preservation of lives. This was an unprecedented circumstance in recent history which had significant effects on different economic sectors and on society (Silva, 2020).

In this context, many companies have adopted strategies to maintain their business. Among them, the dismissal of employees was amid the most used approaches in the beginning of the pandemic, with the goal of reducing expenses and increasing the survival time of the company in the period of crisis (Nassif, Corrêa, & Rosseto, 2020), leaving thousands of people unemployed, which caused great social impact. This picture is illustrated by the data provided by the Brazilian Institute of Geography and Statistics [IBGE] on the unemployment rate in Brazil, decreasing from 2017 (13.3%) to 2019 (12.3%), and increasing in the pandemic years, reaching 12.9% in 2020 and 14.6% in 2021, impacting 14.8 million people.

This situation, little mitigated by the government measures adopted in the pandemic period in Brazil, was observed mainly in two scopes: a) through measures that protected more employers than employees, making rights more flexible and work precarious, concerning to the possibility of reducing working hours and wages or suspending the employment agreement (Provisional Measure n. 936, 2020; Provisional Measure n. 1,045, 2021); and b) through a reduced level of social protection, despite the continuation of the payment of emergency aid for the needed, in a tiny amount to guarantee dignity, since it is less than a quarter of the current minimum wage (Decree n. 10,740, 2021; Provisional Measure n. 1,039, 2021). This legal proportion characterizes misery and gives people with disabilities or the elderly the right to continuous provision in the full amount of a minimum wage (Law n. 8,742, 1993).

This context led many unemployed to seek alternatives other than new jobs, already scarce in remote times and, even more limited in the pandemic, forcibly driving to informality. This alternative way, which from March to May 2021 had a rate of 40%, equivalent to 34.7 million people



(Brazilian Institute of Geography and Statistics [IBGE], 2021a), corresponds to 19.6% of the total Brazilian population in the workforce (Brazilian Institute of Geography and Statistics [IBGE], 2021b). This expressive number is not being effectively reduced by current government policies, even though 1.5 million formal jobs were created in the country in the first half of 2021 (Ministry of Labor and Social Security, 2021), not reaching even 5% of those who find themselves in informality — a scenario where survival must be sought at any cost, through entrepreneurial activities that require investments without any possibility of credit (Salm, 2019). This means that it is an entrepreneurship out of necessity, which emerges from a lack of options, a pressing financial difficulty of those who were fired and could not reallocate themselves in the labor market (Nassif, Ghobril, & Amaral, 2009). Furthermore, the formalization of this informal work, through the registration of the Individual Micro-entrepreneur (IME), is seen as a current trend and one that will possibly prevail after the pandemic (Guimarães, Oliveira, Dimas, & Corrêa, 2022).

Therefore, in the face of this panorama, which justifies the present research, the following question arose: What is the relationship between unemployment and entrepreneurship in the COVID-19 pandemic, based on the dynamics of unemployment, initial entrepreneurship, and the formalization of informal workers, through active IMEs in Brazil? From this central question, the goal of this study was to analyze the relationship between unemployment and entrepreneurship during the COVID-19 pandemic in the country. The specific objectives were: identifying unemployment in the COVID-19 pandemic period; verifying the dynamics of entrepreneurship during the COVID-19 pandemic through initial entrepreneurship and the formalization of informal workers based on the number of active IMEs; investigating the relationship between initial entrepreneurship and active IMEs during the aforementioned pandemic; and examining the relationship between unemployment and entrepreneurship in the period of the COVID-19 pandemic.

This research, developed between February and August 2021 and based on professional and scientific analyses, started from the hypothesis that the effects of the COVID-19 pandemic provoke unemployment, and this is a motivating factor of entrepreneurship by necessity, which stimulates the formalization of MEIs in Brazil. In this perspective, it can have valuable importance as it presents itself as an alternative to solve the current economic problem, because the formalization of these new entrepreneurs might not only generate income for former unemployed, now new employers, but also enable employment and income for other unemployed, generating wealth and development for the country, in the sense of overcoming not only the economic crisis, but also potentiating economic and social growth.

The study is organized into five sections, including this introduction and a following literature review. Subsequently, the methodology adopted in the research is presented. Next, the results and discussions will be brought to light and, at last, the final considerations and the bibliographic references used, will be displayed.

## 2 UNEMPLOYMENT AND ENTREPRENEURSHIP IN THE PANDEMIC PERIOD

The literature review presents an objective foundation of relevant concepts and theories on the subject addressed in this research and their relationships. It is structured in four major sub-topics, namely: The effects of the COVID-19 pandemic; Unemployment and its aspects that lead to entrepreneurship; Entrepreneurship; and Individual Micro-Entrepreneur (IME).



## 2.1 The Effects of the COVID-19 Pandemic

The pandemic provoked by COVID-19 has built an environment of high uncertainty, in which the actions used to its combat were established in divergent ways by competent authorities around the world, both in the economic and health scopes. However, some points are consensual: social distancing, the expansion of health care, and the economic assistance measures aimed at the needy, companies and IMEs (Pires, 2020). This is due to the fact that the health crisis induced a major economic crisis, causing mass unemployment since the beginning of the pandemic (Guimarães et al., 2022).

Systemically, even before the pandemic, it was possible to observe the vulnerability of companies, the weakening of labor relations, and the disarticulation of governments in relation to national demands, which were greatly enhanced by the health crisis (Costa & Braz, 2020). Due to the chain effect that this crisis has been provoking, the economic consequence and the impact on work are high, as it exposes the perversity of neoliberal policies of successive deregulation of labor relations in the world (Harvey, 2020 as cited in Davis, Badiou, Bihr, Harvey, Zibech, & Zizec, 2020).

In this sense, the situation of susceptibility of informal workers expands to the reality of individual micro-entrepreneurs, as most of them do not have efficient means to face the economic effects resulting from the pandemic, due to its impact on the drastic decrease in income and the restriction of the normal flow of supply and demand for its products and services (Silva, 2020). Therefore, if there is no structural change in the role of States in the economy for the equitable distribution of wealth, society will succumb, along with capitalism itself (Costa & Braz, 2020).

Thus, in the face of this unstable scenario brought by the pandemic, that impacts both the economic and social spheres, it is necessary to adapt to the situation and search for solutions to overcome the crisis. Even because it is recognized that financial crises can be avoided or mitigated through good government planning, which involves granting loan guarantees, greater liquidity, credit to companies (mainly micro and small), in addition to other actions that can protect them, as well as their workers (Guimarães, et al., 2022). In this way, it is necessary to further the understanding of unemployment for a greater elucidation of its contemporary situation.

## 2.2 Unemployment and its Aspects that Lead to Entrepreneurship

In order to fully understand the meaning of unemployment, it is important to, first of all, conceptualize employment. From a legal point of view, the definition of employment comes from the concepts of employee and employer set out in the Consolidation of Labor Laws (CLT), as the provision of services of non-eventual nature, in a subordinate manner, made by an individual to a physical or legal person upon salary (Decree-Law n. 5,452, 1943). For the exercise of any job, even on a temporary basis, it is mandatory for the employer to register in the employee's Work and Social Security Card (CTPS) (Decree-Law n. 5,452, 1943). It is from this obligation that the concept of formal employment arises.

From the perspective of Business, employment is the specific consequence of capitalism, being the formal link between the worker and the capitalist mode of production, and not specifically organized, as the worker is able to freely choose who it wants to connect with. In this way, unemployment is the non-possibility of paid labor in organizations in general (Reinert, 2001).

More than that, unemployment is a condition in which a person has no acceptable means of adequately supporting themselves, therefore, the unemployed are people capable of working to satisfy their needs, but who are currently idle, regardless of their willingness to work or what they can do to meet society's needs (Garraty, 1978). Likewise, the Brazilian Institute of Geography and Statistics [IBGE] (2020) concludes that unemployment affects people over fourteen who are not working, but who are available and trying to find work.



In order to better understand this phenomenon, Hirata and Humphrey's (1989, as cited in Pereira & Brito, 2006) studies are highlighted, as they analyze the trajectories of dismissed workers in the industry throughout the 1980s, which showed that the behavior of factory employees in a situation of unemployment did not imply their direct entry into the informal sector. In fact, on the contrary, it demonstrated the preferential search for jobs in their original activity. In this search, the increase in the power of the employer remained evident, which is expressed not only in the increase in requirements, but also in the functions offered, which reflects the power that organizations have over workers and even over the supply and type of jobs offered. Moreover, according to these authors, unemployment affects family dynamics, depending on the position that the unemployed individual occupies in the family. In this sense, the chances of one of them, accepting non-industrial jobs or performing "side hustles" lie on family pressures.

Furthermore, in the Brazilian labor market, full employment has never been a reality, as there has always been a significant portion of Brazilians with no access to formal employment, surviving informally (Costa, 2010 as cited in Mandelbaun & Ribeiro, 2017).

In this regard, from the perspective of the Normative-Institutional Dimension of Unemployment, it is a structural phenomenon of the economy that consists of the voluntary or non-voluntary deprivation of employment, generating a lack of income for the worker and the disruption of his work trajectory. In this case, unemployment would be "[...] the condition of people in an involuntary situation of non-work due to the lack of opportunities (hidden unemployment due to discouragement) or who are performing irregular jobs (hidden unemployment due to precarious work), both [...] applicants for a job [...]" (Ribeiro, 2010 as quoted in Mandelbaun & Ribeiro, 2017, p. 30).

On the other hand, the Biographical-Subjective Dimension sees unemployment as "a phenomenon that generates instability and social invisibility", where unemployment would be "[...] the condition of people in an involuntary situation of non-work, or irregular and discontinuous work, who live a paralysis in their lives due to the attribution of the unemployed stereotype [...], leaving them with no possibility of action on the world [...]" (Ribeiro, 2010 as cited in Mandelbaun & Ribeiro, 2017, p. 31).

In any shape or form, unemployment for longer periods of time leads the worker to seek other means of survival, among them, informality. However, in situations that the income from informal entrepreneurship by need, there is the possibility to become formal, at first as an Individual Micro-entrepreneurship. These topics will be further discussed below.

## 2.3 Entrepreneurship

The definition of entrepreneur is, nowadays, used to designate the different distinct characteristics of an individual endowed with initiative, who takes risks, decides on the use and coordination of scarce resources, and who has the capacity of innovation (Vale, 2014). The first allusions to the concept of entrepreneurship were conceived by Cantillon (1950), for recognizing the attributes of the figure of the entrepreneur in the commercial activity, due to the risks involved in hiring producers, with remuneration at a fixed price, without the security of future sales. In view of this, the concept of the term entrepreneurship was strongly related to uncertainty, since the entrepreneur has the task of assuming the risks related to the scenario in which he is inserted, mainly regarding profit, providing a first view of his social and economic function.

On the other hand, the entrepreneur, according to French economist Say (1983), is a dynamic and rational economic agent who, even undertaking in a vast environment of uncertainty, seeks to efficiently achieve monetary balance, maximizing sales and profits, and striving to adapt its production to the growing demands.



Therefore, to Schumpeter (1997), economic growth results from the action of entrepreneurs who innovate, creating new products, modes of production, means of commercialization, markets, among other innovations. However, in his perspective, this creative role gets marginalized from the economic system when the changes stem from simple pressures of needs.

Thus, in view of this understanding, it is important to highlight that entrepreneurship happens in two ways: by necessity, as previously pointed out by Schumpeter, or by opportunity. Entrepreneurship out of necessity originates from a lack of options, from a pressing financial difficulty of individuals who were usually fired from their jobs and who were unable to find a replacement in the labor market, as a labor alternative and, for the most part, informal. The “entrepreneur by necessity is one who claims to have started a business due to the lack of alternatives to generate employment and income” (Global Entrepreneurship Monitor [GEM], 2017, p. 11).

These entrepreneurs, for lack of necessary support, most of the time fail, due to lack of knowledge (Cunha, Silva, & Yamaguchi, 2011). This classification of entrepreneurship has recently changed and, currently, the necessity modality is defined as an approximation of encouraging entrepreneurship to earn a living because jobs are scarce (Global Entrepreneurship Monitor [GEM], 2020).

On the other hand, entrepreneurship by opportunity carries greater potential for success, because “entrepreneurs by opportunity are those who [...] claim to have started a business mainly because they perceived an opportunity in the environment” (GEM, 2017, p. 11). This means that even with employment and income alternatives, entrepreneurial individuals of this type, are motivated visionary, know where they want to go, plan, and, because they are trained, are more apt to undertake effectively. Therefore, due to these aspects, this type of entrepreneurship is more related to the economic development of the country, as the companies created have greater chances of success (Cunha et al., 2011).

But, regardless of the modality to which they belong, it is evident that an entrepreneur is the person who trusts — even if out of sheer necessity — in their purpose and in the achievement of their objectives, when judging themselves capable of modifying the scenario in which they operate, recognizing risks, and trying to determine their direction (Dolabela, 2008). In this context, it is important to point out the fact that 88% of initial entrepreneurs, those in charge of businesses with up to 3.5 years of existence, justify the start of the business to have an income, due to the lack of jobs (GEM, 2020). However, even though most of these entrepreneurs start a business to survive, entrepreneurship is characterized by being one of the essential factors for promoting employment and income in the economy (GEM, 2020).

Thus, even if entrepreneurship is shown as a behavior, in which the individual may or may not be born with such a characteristic, if it is not inherent to it, it can be taught and acquired (Escarlante, 2010). Therefore, anyone can learn how to be an entrepreneur in essence, as the feasibility of the access to specific education in relation to entrepreneurship is already a reality in Brazilian universities (Dornelas, 2007).

In addition to universities, another great promoter of national entrepreneurship is the Brazilian Service of Support for Micro and Small Enterprises — SEBRAE, an agency aimed especially at small entrepreneurs, whose purpose is to mobilize actions, fostering entrepreneurship through the promotion of the legalization and sustainability of Brazilian enterprises, supporting small entrepreneurs (Dornelas, 2008). And it is in this spirit that, in the following topic, the entrepreneurial culture will be brought to light, a wisdom that, if installed in society, can change the course of a country’s economic dynamics.



### 2.3.1 Entrepreneurial culture

The cultural context tends to have a considerable impact on the development of entrepreneurship, since the predisposition to undertake differs between societies, as the culture that regulates the particularities of entrepreneurs varies from place to place (Saffu, 2003). However, individuals are not born entrepreneurs: they develop this characteristic in the environment in which they live; therefore, both time and space are positive or negative influencers for entrepreneurial action (Schmidt & Dreher, 2008).

The entrepreneurial culture requires new opportunities, means to capitalize on good ideas, and the creation of an adequate structure to take advantage of them. Strategy and planning are the foundations of the entrepreneurial culture, aiming to reduce uncertainties in business opportunities, in accordance with the entrepreneur's attitude in calculating risk in a premeditated way (Vale, 2014).

According to Ritchie and Brindley (2005), entrepreneurial culture is influenced by four determining factors, namely: a) The macro-entrepreneurial context, that depends on policies, procedures, and infrastructures, which can both facilitate or inhibit entrepreneurship, such as government policies and mechanisms to support small local businesses. Furthermore, other initiatives to encourage competitiveness and local support mechanisms are essential, like social, economic, and regional policies; b) The context of the entrepreneurial individual, with some factors that directly influence each person in their development, according to family history and entrepreneurial tradition, cultural influences related to entrepreneurial activity, educational opportunities, and the degree of support from family and friends; c) Individual characteristics, that is, personal particularities that may include attitudes towards self-employment, risk taking, age, self-confidence, educational level, and gender; d) Business processes and practices, which can differentiate the way in which business activity is initiated, developed, and sustained.

In this understanding, the individual can, for instance, start a business in which there is a strong tradition and family encouragement, thus having greater support to create their business. On the other hand, the individual may consider that their individual needs to start a business are more important than the initial stages of setting up a business, which often causes their business to fail due to lack of adequate planning (Schmidt & Dreher, 2008).

This is why companies and societies of all sizes are increasingly realizing the importance and necessity of entrepreneurial behavior and entrepreneurial culture, since these are essential components for the survival and success of organizations in a market with high competition and rapid and constant changes. In this context, it is essential that this culture is also rooted in the individuals, companies, and communities that make up its environment (Nunes & Mello, 2018). Therefore, it is through this perspective that the aspects related to the Individual Microentrepreneur will be addressed in the following topic, which concretizes the legalization of informality and, in a way, a possibility of greater success in their enterprise.

### 2.4 Individual Micro-Entrepreneur (IME)

Legally, the concept of IME is defined in the National Statute of Micro-enterprises and Small Businesses as the entrepreneur who professionally carries out organized economic activity for the production or circulation of goods or services, which does not constitute a company. Or, as an individual entrepreneur who carries out the activities of industrialization, commercialization, and provision of services in rural areas. In both cases, as long as you have earned a gross income of up to R\$ 81,000.00 in the previous calendar year and you have opted for *Simples Nacional* (Complementary Law n. 123, 2006).



For a better understanding, *Simples Nacional* is a special tax regime applicable to IMEs, other micro-enterprises, and small businesses, provided in the same statute, allowing the payment of eight taxes in a single collection document and with reduced costs (Complementary Law n. 123, 2006). This regime enables the continuity of economically weaker companies in the existing competition in a highly competitive market. This is also due to the fact that, from a social point of view, micro-enterprises — IMEs included — along with small companies historically have a much higher social importance than medium and large ones, as in March 2021 they were responsible for generating 57.9% of formal jobs in Brazil (Brazilian Service of Support to Micro and Small Enterprises [SEBRAE], 2021).

Furthermore, according to the aforementioned federal law, the IME has as its main benefits: a) Exemption from all costs of opening, application, registration, operation, license, changes and closing, and other items related to the IME, including amounts related to fees and other contributions regarding registration, licensing, union, regulation, technical responsibility, inspection, and supervision for the exercise of regulated professions; b) Issuance of a provisional operating permit, which will allow the establishment to start operating immediately after the act of registration in case of activity whose level of risk is not considered high, even if installed in the micro-entrepreneur's residence, if the activity does not generate large movement of people, and; c) Possibility of opting for the collection of taxes and contributions covered by *Simples Nacional* in fixed monthly amounts, regardless of the gross revenue earned by it in the month (Complementary Law n. 123, 2006).

To Lima e Silva (2018), the IME is a legal entity, created by the Complementary Law No. 128/2008, which altered the aforementioned law in order to allow those who develop their businesses informally to become legal entities. This process, as it is carried out within the scope of SEBRAE, enables administrative training, as well as guidance in business activities, providing professionalism to micro-entrepreneurs and innovative inspiration, to overcome the barrier of entrepreneurship out of necessity and move forward with a firm purpose of becoming truly an entrepreneur by opportunity.

Thus, given the need to overcome the issue of unemployment and the precariousness of formal work in the current situation, entrepreneurship seems to be a propensity, as well as a trend after the pandemic (Guimarães et al., 2022). More so through the formalization of this initial entrepreneurship, since, according to SEBRAE data (2021), on average, every 2 weeks, 61 thousand new IMEs were formalized in 2018, 83 thousand in 2019 and 107 thousand in 2020. This evolution brings a new hope that, even with only the public policies legally established in the country, these IMEs can have a sustainable activity, not only to support themselves and their families, but also to continue to increasingly contribute to Brazil as a country through of the provision of more jobs, being able to reach even the less assisted.

### 3 METHODOLOGY

The objectives proposed in this study were met through a quantitative, descriptive research that used the survey method. In this sense, the research is quantitative because its results can be quantified and the paper focuses on objectivity (Gil, 2007). Its character is essentially descriptive, as it aims to “describe ‘accurately’ the facts and phenomena of a given reality” (Triviños, 1987, p. 110). At last, the data collection method is a survey because the data collected are secondary, coming from existing databases (Hair, Babin, Money, & Samuel, 2005) of the Continuous National Household Sample Survey — Continuous PNAD — from the Coordination of Work and Income of the Brazilian Institute of Geography and Statistics (IBGE, 2012) to quantify unemployment. In order to quantify entrepreneurship, researches on Entrepreneurship in Brazil from the Global Entrepreneurship Monitor (GEM, 2000) were used, through initial entrepreneurship, as well as the federal government





statistics on entrepreneurship (Portal do Empreendedor, 2010), through the active IMEs. This was analyzed in a timeline that goes from 2016 to 2020, as well as the first quarter of 2021.

A statistical treatment was used as the data analysis technique, through Descriptive and Inferential Statistics. The unemployment variable was arranged in number of people aged 14 or over, while the entrepreneurship variables, in number of initial entrepreneurs and number of active IMEs, were analyzed using Descriptive Statistics, through the location measure named arithmetic mean and the following measures of variability: minimum, maximum, and amplitude. The arithmetic mean is the “balance point” of the set, whose calculation is done as follows:  $\mu = \sum \chi_i / n$ , where  $\chi_i$  represents the data arranged from position 1 to  $n$ th, and  $n$  is the amount of data in the set (Milone, 2006 as cited in Silva, Grams, & Silveira, 2018, p. 40). The minimum of a certain data set is the number with the lowest value, while the maximum is the number with the highest value; they are used to calculate the amplitude, as follows: Amplitude = maximum - minimum (Vieira, 2018).

In another way, this research also used Inferential Statistics, analyzing the same variables in pairs, that is, “unemployment and the number of initial entrepreneurs”, as well as “the number of initial entrepreneurs and the number of active IMEs”. This was done through the association measurement of Pearson’s correlation, which is the coefficient that measures the “linear association between two metric variables” (Hair et al., 2005, p. 313). Moreover, the dependency measurement was applied through simple linear regression, which is embodied in a technique that measures linear relationships between two variables (Hair et al., 2005), whose calculation was performed by the Ordinary Least Squares (OLS) and its model, expressed as follows:  $y = \alpha + \beta x + \varepsilon$ .

This study planned on estimating each regression based on the following hypotheses:  $H_0$  (null hypothesis):  $\beta = 0$ , where there is no relation between the variables  $X$  and  $Y$ ; and  $H_1$  (alternative hypothesis):  $\beta \neq 0$ , in which there is a relation between the variables, using the general significance test (ANOVA), through the analysis of the  $p$ -value to verify the validity of the regression, measured through the following models:  $y_{\text{Initial entrepreneurs}} = \alpha + \beta x_{\text{Unemployment}} + \varepsilon$  and  $y_{\text{Active IMEs}} = \alpha + \beta x_{\text{Initial entrepreneurs}} + \varepsilon$ , adopting a significance level of 5%. All measurements used in this research were calculated through Microsoft Office Excel. Thus, having explained the methodology used, we then proceed to present the results found and perform the appropriate analyses.

## 4 RESULTS

The analysis of the data collected on unemployment in Brazil showed an increase of 47 million unemployed people in 2016, the minimum of the analyzed period, to 53 million in the year of 2020, the maximum, signaling a growth of 14% for the time series and resulting in an average of 51 million unemployed per year. This means that, in 2020, 30% of the total Brazilian population in the workforce was unemployed. Compared to Latin America and the Caribbean, Brazil, despite showing a small fluctuation over the quarters, had a similar behavior in 2020, showing an increasing unemployment rate (Organización Internacional Del Trabajo [ILO], 2020), which is worrying, considering the situation of the pandemic that continues to plague the country.

On the other hand, the behavior of national entrepreneurship was also characterized as a growing trend. Regarding initial entrepreneurship, the number of entrepreneurs in this group grew from 26 million in 2016 to 32 million in 2020, which indicates an increase of 23%. In the analyzed period, the year 2020 had the maximum number of initial entrepreneurs, while 2018 had the minimum, computing 24 million people, which results in an amplitude of 7 million initial entrepreneurs. Furthermore, over the five years analyzed, the average number of initial entrepreneurs was 28 million per year. This indicates, in relation to the total Brazilian population in the workforce, a proportion of 18% of initial entrepreneurs in 2020.



As for the number of formalized entrepreneurs, an increase was observed as well, but in a much higher proportion, as in 2016 there were only 969,000 active IMES, dramatically reaching 1.8 million in 2020, which amounts to an important increase of 94%. In the analyzed period, the year 2020 represented the maximum number of formalized entrepreneurs, while 2018 presented the minimum number, only 862, which totals an amplitude very close to the number of active IMEs in 2020.

In this sense, it is important to highlight that the number of active IMEs in 2018 draws attention, especially due to the fact that the first half of this year presents a surprising negative number of 1 million, which seems to be due to some typing error made when tabulating the data in the Entrepreneur Portal. As a result of this, over the years analyzed, an average of 1.1 million active IMEs was obtained.

Another point, which is worth highlighting is that, although the analyzed variable is of total formalized entrepreneurs — which is the sum of initial and established entrepreneurs<sup>1</sup>, undoubtedly, in 2019 and 2020 there was a major increase in active IMEs, obviously resulting from the formalization of initial entrepreneurs, even because, in 2019, of the 26% of total entrepreneurs who had a CNPJ (formalized), 21% were initial entrepreneurs (GEM, 2020), which corroborates this understanding.

Furthermore, analyzing the number of active IMEs in relation to the total Brazilian population in the workforce, in 2020, the proportion was only 1%. This shows that, although over the years analyzed, the formalization of informal entrepreneurs has grown significantly, this number is still very small, especially when compared to the number of initial entrepreneurs, which is in a proportion of 18% in relation to the workforce. Moreover, despite the existence of favorable laws, this evidenced behavior is probably due to the lack of better and more effective public policies that further stimulate the formalization and maintenance of legally formalized IMEs (Ciccarino, Moraes, & Celano, 2019).

This factor must be taken into high account both by the Executive and the Legislative, because stimulating the formalization and maintenance of IMEs makes it possible to increase tax collection, reverse the trend of precarious work, and protect the consumption relationship. In addition, it supports the very survival of the enterprise, by enabling businesses with people who need to issue invoices for the sale of products or provision of services, and guaranteeing to the micro-entrepreneur a future retirement — elements that make it possible to improve the economy and social conditions in the country (Araújo & Brandão, 2021).

GEM's (2020) research on entrepreneurship confirms this perception by indicating as main motivations for the formalization of ventures in Brazil, in order of importance for entrepreneurs: being regularized (73.5%); contributing to Social Security (31.4%); meeting customer requirements regarding the issuance of invoices (23.2%); meeting the requirement of the company to become outsourced (11.2%) — an aspect that reveals the precariousness of these workers' work; selling to more markets, such as legal entities (10.6%); and other reasons (0.5%).

Moving on to the association measurement, Pearson's correlation coefficient was applied to the two pairs of variables, obtaining, as results, the values arranged in the matrices below. Regarding the bi-variables "unemployment and number of initial entrepreneurs", they are positively associated, which means that, as unemployment increases, so does the number of initial entrepreneurs in Brazil. However, through the Coefficient  $r$ , there is a low association between them.

Table 01 - Correlation matrix of the bi-variables "unemployment and number of initial entrepreneurs"

	Initial entrepreneurship	Unemployment
Initial entrepreneurship	1	
Unemployment	0,36	1

Source: Authors (2022).

<sup>1</sup> Those who are the owners and administrators of a consolidated business, which pays its owners some remuneration, in the form of a salary, pro-labore or other, for a period of more than 4 years.



Therefore, contrary to the predicted hypothesis, which matched several analyzes and researches that concluded that unemployment influences informality and entrepreneurship (GEM, 2020; Guimarães et al., 2022; ILO, 2020; Silva, 2020), although they are positively associated, such association is not important enough to analyze whether there is dependency between these variables. In other words, initial entrepreneurship in Brazil has much more important relationships with factors other than unemployment. This is presented as a limitation of this study, since it is a quantitative research and therefore is not able to identify the factors that really influence undertaking in the country.

Furthermore, this analysis corroborates the entrepreneurship data from GEM (2020). Even though this research concludes that most initial and established entrepreneurs started a new business in a situation of unemployment — agreeing that this condition contributed to or accelerated the start of their entrepreneurial activity —, the motivation of the unemployed to open a business, despite being, in the vast majority of time, to earn a living because jobs are scarce, also has other important catalysts, such as making a difference in the world, accumulating wealth, having high income, and continuing a family tradition.

Likewise, the bi-variables “number of initial entrepreneurs and number of active IMEs” are also positively associated. Thus, it can also be said that as initial entrepreneurship grows in the country, the number of active IMEs increases. However, through its Coefficient  $r$ , a high linear association can be seen.

Table 02 - Correlation matrix of the bi-variables “number of initial entrepreneurs and number of active IMEs”

	Initial entrepreneurship	Unemployment
Initial entrepreneurship	1	
Unemployment	0,94	1

Source: Authors (2022).

In view of the high linear association resulting from the correlation coefficient applied to the bi-variables “number of initial entrepreneurs and number of active IMEs”, the simple linear regression technique was used to understand the existing dependency between the respective variables, obtaining the following results summarized in the table that follows.

Table 03 - Simple linear regression of the bi-variables “number of initial entrepreneurs and number of active IMEs”

Estimation of the regression equation	p-Value	R <sup>2</sup>
$Y_{\text{Active IMEs}} = -4448452,835 + 0,19 \cdot X_{\text{Initial entrepreneurs}} + \epsilon$	0,016832948	0,89

Source: Authors (2022).

Thus, based on this estimated parameter, the p-value was less than 0.05, rejecting the null hypothesis. Therefore, it can be concluded that there is a linear relation between “the number of initial entrepreneurs and the number of active IMEs”. So, verifying how much of the variations in  $y$  are explained by variations in  $x$ , the coefficient of determination ( $R^2$ ) was analyzed, which indicates a proportion of 89% of the variations in active IMEs being explained by variations in initial entrepreneurship, while only 11% of these variations in active IMEs are explained by residuals. From another perspective, regarding the analysis of the intensity of the relation between the variables  $x$  and  $y$ , it appears that, for each increase of 1 initial entrepreneur in the Brazilian market, the number of active IMEs increases by 0.19, while the other factors remain constant.



## 5 CONCLUSIONS

Throughout this study's timeline, the analysis of unemployment and entrepreneurship in Brazil can conclude that both have a growth behavior over time, rising in the pandemic period. However, unlike the theoretically constructed hypothesis, surprisingly there is no correlation between unemployment and early entrepreneurship. But, on the other hand, there is a strong link between initial entrepreneurship and its formalization, to the point that, for every 5 new initial entrepreneurs in the Brazilian market, 1 active IME is formalized.

On the other hand, observing their values in relation to the Brazilian workforce, we obtain 30% of unemployed, 18% of initial entrepreneurs and 1% of active IMEs, which demonstrates a great distance between them, proving that, of the total of unemployed, about 60% find an alternative to earning a living by entrepreneurship, and only 3.5% of them manage to formalize themselves as an IME, with 40% of the active population still remaining without other possibilities and with a great tendency to discouragement and misery.

Therefore, considering the socio-economic relevance of active IMEs, especially as potential generators of new jobs, responsible for a respectable proportion of the Brazilian Gross Domestic Product regarding commerce, services, and as tax collectors, a more protective government plan is necessary, with real access to favorable credit lines, less onerous e-commerce systems, and other protections in order to reverse the growing rate of unemployment of the COVID-19 pandemic. Moreover, it is fundamental to enable sustainability for these enterprises, changing the culture of informalization of initial entrepreneurs due to the lack of public policies that can indeed encourage their formalization and legal maintenance. Thus, for future studies, investigations with a qualitative approach are recommended to identify the factors that are in fact related to the action of undertaking in Brazil.

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Contribution	[Author 1]	[Author 2]	[Author 3]
1. Definition of research problem	√	√	√
2. Development of hypotheses or research questions (empirical studies) Desenvolvimento de hipóteses ou questões de pesquisa (estudos empíricos)	√	√	√
3. Development of theoretical propositions (theoretical work) Desenvolvimento de proposições teóricas (trabalho teórico)	√		
4. Theoretical foundation / Literature review	√	√	
5. Definition of methodological procedures Definição de procedimentos metodológicos	√	√	√
6. Data collection Coleta de dados	√	√	
7. Statistical analysis	√	√	
8. Analysis and interpretation of data	√		
9. Critical revision of the manuscript Revisão crítica do manuscrito	√	√	√
10. Manuscript writing Escrita do manuscrito	√	√	
11. Other (please specify)			

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