

Active Labor Market Policies in Cape Verde: Education, Labor and Sectoral Policies

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1. INTRODUCTION

Skill and employment policies are vital in shaping the socio-economic development of a country. According to the ILO (n.d.), these policies aim to improve "the functioning of the labor market by inducing changes in labor demand and supply, as well as their matching process". They serve as a driving force for economic growth, social cohesion, and individual prosperity. Creating effective strategies in these domains is crucial for developing countries like Cape Verde. This thesis examines various aspects of employment policies in Cape Verde, each addressed by a different group member. Our investigation spans the themes of informality, education, agriculture and job search

platforms.

Our first theme explores the informal labor market in Cape Verde, which makes up 52% (Observatório do Mercado de Trabalho, 2022) of the jobs in the country, seeking to understand how this influences the design and implementation of Active Labor Market Policies (ALMPs). While offering greater flexibility and immediate opportunities for income generation, the informal sector typically lacks the benefits and protections provided by formal employment. Therefore, understanding the impact of informality on labor market policies is crucial in ensuring effective, efficient and inclusive policy design. Guided by the research question, "How should labor market informality influence Active Labor Market Policies in Cape Verde?" we study the informal labor market, understanding the impact that informality has on the Cape Verdean economy and if it is possible for the government to support the creation of decent jobs without firstly eradicating informality.

The second theme explores the role of education in shaping the labor market. Education is fundamental for equipping individuals with the skills necessary for productive employment. However, developing countries' traditional education systems often need help providing quality and relevant learning opportunities. Therefore, our second research question asks: "How can innovative learning approaches address the challenges faced by education systems in developing countries?" Through this lens, we will explore the potential of innovative educational approaches to alleviate obstacles within education systems in developing nations. We will analyze the Brave Generation Academy (BGA) model, a pioneering hybrid educational system, to understand its efficacy in addressing these educational shortcomings. By comparing the traditional methods with the practices of BGA, the research aims to derive insights into how such innovative models can be adapted and scaled in various developing country contexts.

Thirdly, the research directs attention to the agriculture sector in Cape Verde, a field of critical importance that frequently has challenges related to low productivity and sustainability. Thus, the third research question arises: "What key strategies and public policy interventions are required to enhance agricultural productivity, reduce dependence on foreign food supplies, increase labor market participation, and promote sustainable agribusiness development in Cape Verde?" This inquiry is the cornerstone for analyzing potential measures to enlarge best agricultural practices, bolster labor engagement, and foster sustainable growth. Numerous factors, such as limited geographic conditions, arable land, water scarcity, pervasive soil erosion, and inconsistent rainfall patterns, curtail Cape Verde's agricultural productivity. Consequently, the strategies to increase productivity must be multi-faceted, addressing various dimensions to escalate productivity and curtail reliance on food imports. The main goal is reducing dependence on foreign food supplies stands, considering imported food poses a substantial concern for national food security. Moreover, increasing labor market participation represents another facet of this complex issue. To avoid the young generation's aversion to agriculture labor, there is the need to counteract through attractive incentives, comprehensive education, and training programs designed to render agriculture attractive, enticing more young individuals into this vital sector.

Finally, we examine the role of job search platforms and labor market information systems in developing countries. Moreover, we also consider their role in evaluating the impact of ALMPs. These platforms may be crucial for matching job seekers with employers and providing valuable data to guide policy decisions. Our research question is: "How can labor market information systems facilitate impact assessments of Active Labor Market Policies?" We aim to provide insights into how Cape Verde can better leverage information systems to evaluate and improve its employment policies by

addressing this question.

In conclusion, this thesis aims to analyze employment policies in Cape Verde comprehensively. Considering the four themes mentioned above, we intend to understand the interconnectedness of these sectors and their implications for Cape Verde's economy. The outcomes obtained from our four studies include suggesting improvements to make job policies more inclusive and effective, identifying innovative educational strategies that better prepare individuals for employment, proposing methods to enhance agricultural productivity, and understanding the role of job search platforms in shaping job policies. Through this comprehensive analysis, we hope to contribute positively to Cape Verde's socio-economic development and provide insights that could benefit other countries in similar circumstances.

2. LITERATURE REVIEW

2.1. INTRODUCTION TO ACTIVE LABOR MARKET POLICIES (ALMPS)

Active Labor Market Policies (ALMPs) are interventions designed to improve the labour market's functioning by increasing jobseekers' employment prospects and enhancing workers' skill sets. Forslund (n.d.) categorizes these policies into four types: job-search assistance, training, subsidized employment, and work practice schemes. Each policy measure often incorporates a combination of channels to effectively support unemployed individuals, such as influencing job-search behavior, enhancing worker skills, and facilitating labor-market connections.

Card, Kluve, and Weber (2015) conducted a meta-analysis of ALMP studies and found that well-targeted ALMPs can improve the functioning of the labor market and reduce unemployment. Their analysis emphasizes the importance of tailoring policies to the needs of different groups, such as long-term unemployed, young people, and disadvantaged workers.

Crépon and Berg (2016) discuss the potential drawbacks of ALMPs. Despite their potential benefits, some participants may dislike these programs. They discuss the "threat effect," where individuals may accept low-paying jobs to avoid enrolling in an ALMP. This effect drives people out of unemployment and inadvertently reduces the number of actual program participants. Moreover, ALMPs may have unintended consequences on the job search process and productivity, with the threat effect sometimes dominating the overall ex-ante effects of training.

The authors also present the "lock-in effect," acknowledging that time spent in programs like vocational training could detract from other activities that could help job seekers find employment. Consequently, the upfront time costs might counteract the program's positive impact on reducing unemployment duration.

McKenzie (2017) argues that traditional ALMPs in developing countries, whose focus tendency is skills training and job search assistance, have, to a certain point, a frugal impact on employment and earnings. This and the regular over-expectation around these policies breed disappointing results. One explanation offered by the report is that labor markets (e.g. in rural settings) in developing countries function better than commonly anticipated, with a significant fluctuation of workers between job openings and opportunities. Even though traditional ALMPs fall flat in these contexts, alternative policies may bring positive outcomes. The report alludes to Campos et al. (2016) work in Uganda, which depicted that the salary of women transitioning to male-dominated industries was three times higher than that of women who remained in female-dominated industries.

Kluve et al. (2018) conducted a quantitative review of 113 impact evaluations of youth employment programs, finding considerable variation in their effectiveness across different interventions, target populations, and contexts. Skills training and

entrepreneurship programs and those targeting vulnerable groups such as young women, low-skilled youth, or rural populations showed higher impacts on labor market outcomes.

2.2 ALMPs AND LABOR MARKETS IN SUB-SAHARAN AFRICA

Forecast data indicates a significant rise in youth populations in West, Central, and East African nations, contributing considerably to this demographic rise in Africa continental. Forecasts suggest that, by 2050, up to one-third of the global youth population could be living in Africa, up from one-fifth in 2012 (AFDB, 2015). In Sub-Saharan Africa (SSA), where Cape Verde is inserted, the economic growth largely remained static. The region's real GDP per capita in 2000 showed a mere 7% increase compared to the 1960's value (AFDB, 2015).

An OECD (2018) study emphasizes that employment remains a significant challenge in West Africa. According to this study, the lack of jobs in the formal sector, the weak levels of education, and the lack of matching between the jobs available and the skills of the population lead to high levels of unemployment, especially among the youth population. OECD (2018) states that to promote inclusive growth, it is crucial to focus the development strategies on three different sectors: a better interconnection between the rural and the urban areas, improvement of local products by encouraging companies to collaborate, and, lastly, an upgrade at the institutional level, both on companies and also on the tax system of the country.

When adapted to the local context, active labour market policies can play a crucial role in addressing these challenges. Betcheman and Khan (2018) argue for unconventional interventions and emphasize improving skills and training for the young African population. They propose categorizing interventions into five areas: employment creation, skills development, employment services, entrepreneurship, and agriculture.

Regarding employment creation, the aim is to improve the labor demand for youth

through public works programs and wage subsidies. Public works have proven their success in increasing employment and earnings; however, they need to provide skills improvement. Regarding the wage subsidies, young people have more difficulty establishing themselves in the labor market since they are perceived as needing more skills and experience, and this type of hiring incentive will allow them to enter the market.

As for the second program mentioned above, which is the most common type of intervention, it provides the required education and training for the youth to enter the labor market.

Employment services correspond, for example, to job search assistance. This type of program improves the functioning of the labor market, allowing for better circulation of information in the market and leading to better matching between job seekers and employers.

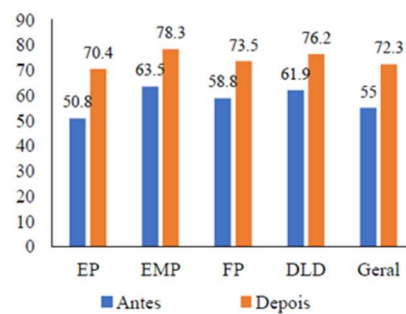
Entrepreneurship interventions address two goals. The first is to support self-employment in a way that leads to poverty reduction, usually through microfinance. The second objective is encouraging young people to engage in entrepreneurial activities, not through microfinance support for their livelihood, but through advising on their financial and technical needs.

The final intervention, on agriculture, aims to support farm initiatives in developing countries and improve the livelihood in agriculture, considering that this activity is one of the most crucial in the economy of sub-Saharan African countries. Despite its relatively low productivity, agriculture still has a critical economic role in the sub-Saharan African economy. Kanu et al. (2014) note that agriculture employs around 57% of Africa's workforce, making it a primary employment sector.

3. CAPE VERDE'S LABOR MARKET AND POLICIES.

3.1. OVERVIEW OF CAPE VERDE'S LABOR MARKET STRATEGY

Concluding the analysis of the sub-Saharan African labor market, it is crucial to perform a deep analysis of the labor market of Cape Verde. The Ministry of Finance and Business Promotion of Cape Verde (2022) developed a report to show the impact active labor policies can have on employment and formation. The report starts by explaining that, given the need to fulfill 2030 sustainable development with a focus on poverty eradication, better working conditions, more productive work, and dignity for all, Cape Verde adopted several measures from 2018 to 2020. These measures focus on politics, active labor policies, and training, which aims to give people a set of tools from which they will benefit when facing the possibility of entering a dignified and proper job.



Graphic 1 Percentage of respondents that worked, before and after the program, Cape Verde - 2022

Source: Observatório do Mercado de Trabalho

The study from the Ministry of Finance and Business Promotion of Cape Verde (2022) provides a quantitative approach and involves all the beneficiaries of the active labor policies between 2018 and 2020; however, no comparison group of non-participants is included. The ALMPs correspond to professional training (formação profissional), technical courses (ensino técnico), internships (estágios profissionais), long-term unemployed insertion projects, and projects promoting entrepreneurship and self-employment. The government implemented five measures: Professional Business Internship Program, Professional Training, Integration of the long-term unemployed, Entrepreneurship, and Technical Education (technical pathway).

The following figure, in Portuguese, shows the percentage of respondents that worked before and after the programs, corresponding to the abbreviations EP, EMP, FP, and DLD for Professional Internship, Entrepreneurship, Professional training, and Long-term unemployment, respectively. The method used to collect information was self-completion via either an online questionnaire or a telephone interview, which resulted in 2004 valid responses, which, according to the report, represent a small number of replies.

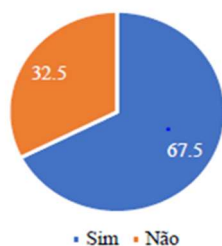
3.2. IMPACT ANALYSIS OF ACTIVE LABOR POLICIES IN CAPE VERDE

The success rate of Active Labor Market Policies (ALMPs) can significantly fluctuate based on factors such as the policy, how well it is executed, and the local environment. Therefore, a comprehensive understanding of the region's employment market and the distinct challenges that job seekers encounter is crucial. These policies can demand considerable resources, and appropriately directing them is vital to maximizing their benefits.

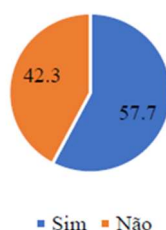
The report previously mentioned by the Ministry of Finance and Business Promotion of Cape Verde (2022) analyzed the outcomes of these measures. When looking more closely at the traineeship program, the report shows that the IEFPP has been developing studies in this area since 2010. During the five years before the report release, INE, in partnership with IEFPP/DGE, developed some questions that allow us to calculate the insertion rate of beneficiaries of vocational training programs, which has fed the GAO matrix. On the topic of vocational training, another two studies have also been carried out, in the same timeline as the one just mentioned, on the satisfaction with the qualifications designed, which assesses the quality of the training implemented with the insertion in the labor market.

According to the following graphic, most respondents declared that the training contributed to their first job after completing the program, and on the following graphic,

58% declared it was their first job.



Graphic 2 Percentage of participants that said formation contributed for the finding of their first job, Cape Verde 2022
Source: Observatório do Mercado de Trabalho



Graphic 3 Distribution, in percentage, according to first job, Cape Verde 2022

Source: Observatório do Mercado de Trabalho

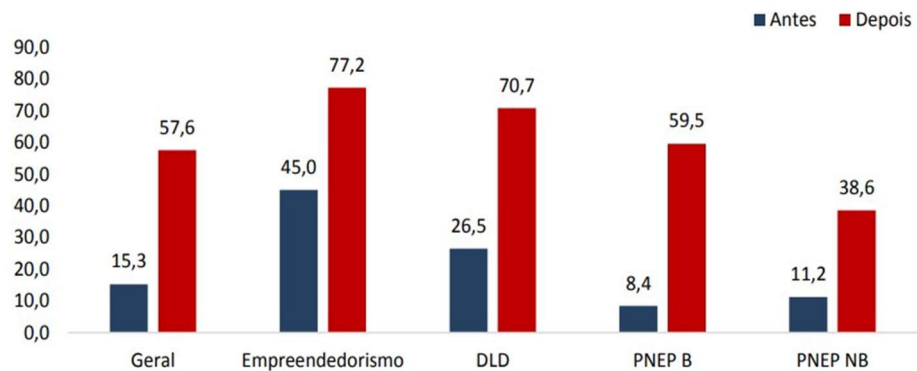
Previous reports underlining the impactful evaluation of ALMPs in Cape Verde have been conducted, most notably between 2015 and 2017. As previously mentioned, the report focused on the impact of programs/projects for the unemployed, entrepreneurs or individuals seeking professional internships.

During the analyzed period, 75.5% of beneficiaries were in *Programa Nacional de Estágios Profissionais* (PNEP), followed by entrepreneurship and unemployment projects. This is unsurprising considering the strong bet on professional internships in the country.

Most of the respondents underlined in the report were women, granting this group a higher insertion rate after six and twelve months. Nevertheless, analyzing both sexes individually demonstrated that males had a higher insertion rate.

The report's significant findings depict that after the programs, there was a significant increase in the proportion of individuals with jobs between 2015 and 2017, as observed in the following graph. Moreover, all of the beneficiaries experienced higher salaries after

the programs.



Graphic 4 Proportion (%) of respondents who have ever worked: before and after the program,
Source: IEFP, estudo de impacto de programas e projetos de emprego, 2018

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PUBLIC POLICY IN AGRICULTURE AND THE LABOUR MARKET IN
DEVELOPING COUNTRIES: THE CASE OF CAPE VERDE

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Abstract (100 words maximum)

This research aims to investigate public policies in developing nations like Brazil and Angola, focusing on their relevance for labor market strategies and the agricultural sector in Cape Verde. The study examines how examples of best practices in agriculture and labor market policies from these developing countries can be adapted to accelerate Cape Verde's agriculture development. Through a comprehensive review of public policies, this paper highlights about strategies to bolster agricultural productivity and ensure sustainable employment. In conclusion, adapting methodologies from developing countries may offer a roadmap for Cape Verde's sustainable agricultural and labor market progress.

Keywords: Agriculture, sustainable development, precision agriculture, agtech, labor, market, renewable resource, employment, agro employment, environmental protection.

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The agricultural sector in Cape Verde faces unique challenges, primarily due to its geographical location, climate, and limited arable land. However, there's an opportunity for Cape Verde to harness successful agricultural practices from other developing countries to enhance its own sector. This study delves into these successful models with the aim of recommending suitable policies and practices for Cape Verde. These policies could serve as models for smaller nations like Cape Verde to enhance the sector and guarantee quality jobs in the agriculture sector.

The primary objective of this study is to identify and analyse successful agricultural policies and practices from developing countries. By examining these models, the study seeks to provide insights that can be tailored to Cape Verde's context, promoting growth in its agricultural sector and ensuring quality employment opportunities.

1. Research question:

What key public policy interventions are required to enhance agricultural productivity and qualify jobs in Cape Verde?

1. State of Arts introduction to Cape Verde study.

- 1.1. Farming production in Cape Verde.

Cape Verde is an island country in the central Atlantic Ocean off the coast of West Africa. Its tropical climate features relatively consistent, stable temperatures around the year. However, Cape Verde faces environmental challenges that affect agricultural production. The country grapples with limited freshwater resources due to its semi-arid nature. Water availability becomes a prominent concern, especially during the dry season (November to June). The country faces challenges with freshwater supply, and due to this problem, the country heavily relies on desalination plants, groundwater sources, and imported water.

For the agriculture sector, two significant problems affect Cape Verde water scarcity and drought (desertification) of some islands, directly impacting agriculture production capacity. Cape Verde needs to use some strategies to be able to produce agricultural products due to the limited water supply.

During the Wet Season (July to October), there is a higher possibility of rainfall, although it is not as intense as in other tropical regions. The farmers use hillside areas, generally cultivated during the rainy season. Commonly grown crops are maize, beans, and sometimes tubers and certain fruit trees. It means adapting agriculture production to the geographical conditions of Cape Verde. Large-scale agriculture is extremely difficult in Cape Verde; moreover, this production does not match Cape Verde's sustainability plan.

According to Rozane Marcia Triches, Sergio Schneider, and Elsa Simões (2013), using data from the Environmental and Agriculture Ministry of Cape Verde, the total available area, 90.8% are dry land (areas without water for irrigation), 7.8% irrigated land and 1.3% rainfed and irrigated land (Triches et al., 2013, 73). The surface area available by the owners has an average of 1.24 hectares (Triches et al. 2013, 74), meaning small farmers are a more significant number in Cape Verde. 99.87% of agricultural activity in Cape Verde is conducted by families (Triches et al., 2013, 74).

1.1. Agribusiness and Labor Market policies strategy in Cape Verde

Cape Verde seeks actively to reduce its dependence on food imports, aiming to lower food prices for its local population. It is important to argue that a country's economic effort, especially the effort to develop a modern and active agriculture, has the potential to generate economic growth, which, in turn, can open the way for labor policies and Active Employment Measures on the part of the State to solve two issues at once: employability and food supply.

These activity employment measures are designed to enhance the employability of jobseekers by preserving and improving their skills while keeping them connected to the labor market. Moreover, within the context of the agricultural sector, these efforts also prevent migration to urban centers or foreign countries. This study will analyze Cape Verde's public policy in activity ALMP in the Agriculture sector with Brazil, Portuguese speaking African Countries (PALOP) which developing countries have different approaches to the Agriculture sector.

The agricultural sector in Cape Verde faces challenges due to the country's climatic conditions and limited natural resources, which influence low agriculture production. Only 19,6% of Cape Verde's land is used by Agricultural land (World Bank, 2023). One may reason is rainfall, which is both scarce and irregularly distributed. However, further

south islands experience higher precipitation levels, sustaining larger populations and agriculture production. Water scarcity plays a crucial role in Cape Verde's agriculture. This heavy reliance on rainfall poses a significant problem as it doesn't ensure food security for Cape Verdean's population. According to INE in 2015, 34% of Cape Verde's population worked in Agriculture production (RGA, 2015). it's estimated that no more than 10% of Cape Verdean population worked in the Agriculture sector in 2023, it means a considerable decrease in last few years which can represent a significant problem for the country in the future.

Cape Verde is extremely dependent on importing foods supply which represents a significant threat in case of disruption of global agriculture production. To address this issue, our study aims to explore public policies implemented in developing countries and including Portuguese-speaking African nations. The primary objective is to analyze the impact of these policies on boosting agricultural production and if it's possible to be replicated in Cape Verde.

Additionally, the unemployment rate in Cape Verde was 12,5% in 2022 (INE, 2022). According to the data from the National Institute of Statistics (INE), many people (29%) between 15-35 years old are not working or in training, according to the data from the National Institute of Statistics (INE). In our study, we will analyze the impact of the beneficiaries of economic support to reallocate into the formal labor market. When we examine the agriculture sector, it's necessary to understand that informal work in rural areas is the reality. Still, our goal in this study is to analyze policies developed by the Cape Verdean government to increase qualified jobs and guarantee Cape Verde's food security.

Developing the agribusiness sector aligns with initiatives such as the "National Strategy for the Promotion of Decent Employment (ENPED)" and the goal of generating

skilled and self-employment opportunities across all economic sectors. By integrating these efforts, Cape Verde can work towards achieving the targets set in the "Cape Verde Sustainable Development Strategy - CVA2030."

The trade balance of export products from Cape Verde shows the country exports 62% seafood products¹, which means, the Cape Verdean economy highly depends on the primary sector. While some reports about Cape Verdean's economy shows the country exports a high value of service throughout "Tourism Industry". Meanwhile, Cape Verde's imports also show a country that imports large quantities of foods such as Dairy products, Cereals, and meat; around 9.3% of imports of Cape Verde come from agricultural products, some of which could be produced locally².

To address the challenges previously mentioned, the Cape Verdean government has actively implemented programs and action plans in recent years. These initiatives are designed to target the agricultural sector's specific issues and work towards reducing and resolving them. One of the significant challenges is water supply for agriculture (each will be mentioned ahead, see (Chapter 4). Additionally, the country faces infrastructure problems, such as inadequate road networks.

A study conducted by the World Bank in 2022, the "Cape Verde From a past isolation to a present hope in Ribeira dos Picos" (World Bank, 2022) highlighted the positive impact of infrastructure development in Ribeira dos Picos, Santiago, the largest island. The construction of a new road in this region has benefited local farmers, particularly the producer of sugar cane, vegetables, and bananas, among other agricultural products. The improved road connection has facilitated transportation and market access, enabling local farmers to increase their agricultural output and improve their quality of life. Moreover,

¹ Trading Economics. (Accessed on 20.06.2023). Cape Verde Exports by Category. Retrieved from <https://tradingeconomics.com/cape-verde/exports-by-category>.

² Trading Economics. (Accessed on 20.06.2023). Cape Verde Import by Category. Retrieved from <https://tradingeconomics.com/cape-verde/imports-by-category>

the enhanced connectivity has opened up³ business opportunities, and the town is now connected to other important parts of the country, such as the Capital city of Praia. Ribeira dos Picos is just 34 km away from Praia.

Cape Verde's Government recognizes the potential of agribusiness to drive rural development, create employment opportunities, and enhance the competitiveness of its agricultural sector. On the other hand, there are some problems that the Cape Verde government needs to address immediately, such as the water supply challenges and investment in infrastructure to support the agricultural sector and foster economic development in the country.

Support for Small-Scale Farmers is a mandatory strategy, such as the case studied by World Bank in Ribeira dos Picos where 6.500 people living in this town have benefitted from the highway construction that positively impacts the local economy. Market Access and Value Addition are necessary to increase agriculture production. Cape Verde aims to enhance market access for agricultural products. It can help improve the employment of youth Cape Verdean in their community, preventing them from moving out to the larger city or even migrating to other countries. However, it's necessary to support Farmers' Cooperatives and Associations in formulating public policy that could help increase knowledge of agriculture skills to production. These organizations help small-scale farmers pool resources, access credit, and inputs, and collectively market their produce. There are cases in Brazil that the Cape Verde government could use as an example of a Farmers association that helped local farmers to produce more. Farmers can strengthen their bargaining power, improve efficiency, and overcome common challenges by working together.

³ Cabo Verde: From a Past of Isolation to a Present of Hope in Ribeira Dos Picos (Accessed on 20.06.2023). Retrieved from: <https://www.worldbank.org/en/news/feature/2021/11/16/cabo-verde-from-a-past-of-isolation-to-a-present-of-hope-in-ribeira-dos-picos>

2. Methodology.

This research project aims to examine the unique challenges and opportunities within Cape Verde's agriculture sector, an island nation grappling with climatic conditions, limited resources, and a weak production base. Despite these challenges, Cape Verde recognizes the vital role of agriculture in economic development and food security and has embarked on initiatives to capitalize on its agricultural potential.

The research proposes an analysis of policies aimed at achieving sustainability and improving job quality. This includes strengthening the skills of farmers and agribusiness entrepreneurs through initiatives that enhance technical proficiency and promote innovative, sustainable farming techniques. The study also emphasizes the importance of a robust labor market in agriculture for Cape Verde's economic growth, analyzing PALOP countries and Brazil's strategy in technology and job qualification in agriculture as a potential model.

2.1. Combined methodology

This research focuses on the collection of data related agriculture sector and the labor market in Cape Verde. So, by adopting a combined methodology, I try to understand what was proposed best. The analysis of the Cape Verde labor policy, Agriculture policy, and comparison with Brazil and PALOP countries. I include the need for a historical and geographical research of Cape Verde to understand the objective studied.

3. Agriculture Policy and Strategy Analysis. Brazil and PALOP countries.

3.1. Brazil.

Brazil's agricultural technological-based incubators play a crucial role in innovation and supporting the agricultural sector's growth. These incubators provide a nurturing environment for entrepreneurs, startups, and researchers to develop and commercialize agricultural technologies, contributing to the modernization of the country's agricultural

practices. Brazil is renowned for its vast agricultural resources and is one of the world's leading producers and exporters of various agricultural commodities. However, the agricultural sector requires continuous technological advancements and innovative solutions to ensure long-term sustainability and competitiveness. Agricultural technological-based incubators serve as a platform for entrepreneurs and researchers to collaborate, access resources, and receive guidance to develop their ideas into viable agricultural technologies and businesses.

The Brazilian MCTI Ordinance No. 139 / 2009 defines incubators as mechanisms designed to stimulate and provide logistical, managerial, and technological assistance to entrepreneurial ventures focused on innovation and knowledge-intensive endeavors in diverse areas of knowledge. Around two-thirds of incubators in Brazil have a primary focus on the technological sector, with a strong emphasis on generating high added value. The number of specialized agriculture companies in Brazil is estimated to be around 1,574 startups, with 78 institutions dedicated to supporting incubation and acceleration processes while investing in these promising businesses.

Advancements in the technology sector, such as the Internet of Things (IoT), artificial intelligence, and big data analytics, have created new possibilities in agriculture. Agrotech uses these technologies to develop innovative farming systems, precision agriculture tools, and data-driven decision-making platforms, enabling farmers to monitor and manage their crops more effectively, increasing efficiency and better outcomes

3.2. Brazilian small-scale Farming.

Agricultural policy significantly impacts citizens' quality-of-life expectations and economic development. Countries can learn from global examples to develop better strategies for their countries and society. Cape Verde, relying heavily on imported food, could create an agricultural sector to produce local food, reducing costs for Cape Verdean

population. However, some islands face geography challenges, limiting the production of certain crops.

According to Fachini, Cristina, and Nilda Mello, small-scale farming is defined as "It is frequently perceived small-scale farming as a means of subsistence. Nevertheless, it is crucial to situate it as a system within a broader socio-economic context, where its strength is significant for the population that relies on rural areas and migration to cities is avoided. On the other hand, family farming production mitigates social tensions between rural and urban areas while making valuable contributions to the supply of food and agriculture products to the market." (Fachini, C., Oliveira, S. R., Nogueira, E. A., & Mello, N. T. C. (2007).

One example mentioned by the author is how "the Brazilian family agricultural production has managed to evolve by adapting to the changing socio-economic circumstances across generations, regardless of the diverse political regimes and regions" (Fachini et al 2007). In the long run, with even many economic and social difficulties in Brazil, small farms and peasant farming have been able to invent new forms and adaptations following different strategies and markets.

This study aims to initiate a review of this topic, also presenting some experiences of business incubators in Brazil that analyze this strategy that could help Cape Verde develop a strategy in the Agriculture and labor policy—especially those focused on developing entrepreneurship and innovation. The Brazilian Government in Agriculture policy has elaborated different approaches to increase agriculture production for many years. The national Government has actively used large-scale agriculture production policy in Brazil; however, it has also implemented small-scale Agriculture production with different approaches that could be used as policy evaluation analysis for Cape Verde.

It is necessary to understand that innovation does not emerge from nothing—some structure and support by the local Government or international support for ideas to develop and become a business. In Brazil, there are "the incubators (which) aim to help companies to overcome the barriers existing in the first years of their constitution, often offering them an appropriate environment and equipped with technical and managerial training programs" (Fachini, C. et al. mentioned Ibáñez et al. 2004). Local Universities and Labor training support do this support. Most of the budget is provided by the Technological and Science Ministry.

Understanding how support for small farmers and companies is developed is essential. Ibáñez et al. (2004) define a business incubator as "a controlled work environment that stimulates the creation and development of new emerging companies, and that has particular characteristics, which aim to create a cooperative climate for the training, support, and development of small companies and entrepreneurs" (Ibáñez et al. 2004).

It means there is necessary support from business incubators for developing new Agriculture companies. On the other hand, the local Government using programs such as the Food Procurement strategy can promote rural development.

3.3. The PALOP Countries.

The agriculture sector in PALOP countries (Portuguese-speaking African Countries) is crucial for economic growth, rural development, and food security. Angola and Mozambique prioritizing agricultural development to diversify their economies. Guinea-Bissau requires international support to develop its agriculture sector (see appendix). Cape Verde has a relatively small proportion of agricultural land, accounting for only 19.6% of the country's total land area, potentially influenced by previously mentioned geographic conditions. However, between 2010 and 2015, Cape Verde experienced an

increase in agricultural land of 5.7%. But in recent years, the percentage dropped to the values of 2010.

Countries such as Mozambique, Angola, and Guinea have experienced significant expansions in their agricultural land area in recent years, reflecting a growing focus on agricultural development and food production⁴. Even with different strategies, these countries have recognized the agricultural sector's potential to contribute to economic growth, rural development, and food security. Mozambique with its vast arable land and favorable climatic conditions, has been actively promoting agricultural expansion. Angola has also witnessed an increase in agricultural land area. Both governments of Angola and Mozambique have prioritized agricultural development to diversify their economy. In contrast, São Tomé and Príncipe has experienced a decline in agricultural land area, recording a significant decrease of 17%. Guinea-Bissau is a particular case of a country that needs international support to develop its agriculture sector (see appendix)

3.3.1. Angola.

Angola is a country rich in natural resources and has increasingly emphasized revitalizing its agriculture sector to promote food security, reduce food import dependency, and drive rural development. The Government has implemented various policies and initiatives to support agricultural growth, improve productivity, and enhance farmers' livelihoods. Angola government created a research institute, the National Institute of Agricultural Research (IIA), a public institution in 1961 under the Ministry of Agriculture that conducts research and provides extension services to support farmers and improve agricultural practices. These institutions focus on developing and disseminating improved crop varieties, promoting sustainable farming techniques, and addressing

⁴ Produção Agrícola em Angola cresce 7% <https://www.jornaldeangola.ao/ao/noticias/producao-agricola-cresce-7-00-por-cento-este-ano/>

specific challenges faced by farmers. Located in Huambo, Angola, this institution also aims to develop Angola's rural area.

However, at the same time, this policy has some limitations due to economic and political influence in Angola. Those problems rely on the fact that many authors discuss "The Dutch Disease" in Angola due to the country depends mainly on the offshore petroleum industry for 37% of its GDP, 75% of government revenues, and 90% of exports (Biedermann, Z.; Barczikay, T.; Szalai, L., 2023). There are some hypotheses, argued by the researchers Biedermann, Zsuzsanna, Tamás Barczikay, and László Szalai, that there are shreds of evidence that "The Dutch disease" in Angola's economy is actual.

Over the past few years, there has been a significant surge in the contribution of agriculture to the Angolan economy by private and public sector, with an annual growth rate of approximately 4.9%. This remarkable progress has resulted in a notable expansion of agriculture's share in the Gross Domestic Product (GDP), soaring from 5.8% to 10% between 2011 and 2017 (World Bank. 2021). However, the country is still affected by high dependence on oil prices, which influences the capacity of food imports.

Despite facing challenges, Angola stands out as one of the most significant countries boasting vast agricultural potential with fertile soils, a favorable climate, and approximately 45.7% of its landscape suitable for farming (World Bank, 2021). Angola achieved notable crop yields production, including 2,818,684 tons of corn, 10,102 tons of rice, and 11,135,827 tons of Root Vegetables and Tubers (Ministério da Agricultura e florestas, 2019). Huambo province emerges as the largest crop plant producer, contributing approximately 28% to Angola's overall agricultural output. Despite these accomplishments, Angola still falls short of reaching its meat production targets. In 2019, the country's beef meat production reached only 40% of the targeted 335,284 tons for that

year. Angola relies in on governmental organization with clear goals that helps to develop a Public Policy.

Angolan agriculture relies on family farming as its fundamental pillar for cultivating 79% of cereals, 92% of roots and tubers, and 90% of legumes and oilseeds. The 2014 General Population data reveals that agriculture provides livelihoods for 9,635,036 people, constituting approximately 37.7% of the total national population or 1,773,743 households (INE, 2016). It means there is an opportunity for the private sector in this sector to develop investments.

Even with family farming as the pillar of Agriculture policy in Angola, it does not mean that the government did support the agribusiness sector. Angola government has implemented a Commercial Agriculture Development Project (PDAC) to increase productivity and improve market access for farmers. This project does not finance subsistence agriculture. The main goal is to achieve individuals such as qualified farmers and agribusiness Small and medium-sized enterprises (SMEs) that benefit from direct financial support, technical assistance, Investment co-financing, Partial Credit Guarantees, or infrastructure investments supported by the project⁵.

As mentioned, the Angolan government has committed to the agricultural sector by increasing public investment. Funding has been allocated for restoring rural infrastructure, including roads, irrigation systems, and storage facilities, and supporting qualified farmers to get the economic resource to finance productivity. The founding program for family farming, representing "Fundo de Apoio ao Desenvolvimento Agrário" (FADA); it's another support of the Angola Government to finance small farmers, according to former Agriculture and Forest Minister Marcos Nhunga in one

⁵ More information about the project: <https://pdac.ao/opdac/>

interview at FAO in Rome⁶. Nhunga also says the country is open to foreign investment in the agriculture sector.

It seems Angola can invest in the agriculture sector and provide the institutional approach for agriculture production. There is a public interest in developing Angola's commercial agriculture sector, overcoming subsistence agriculture. It can boost and diversify Angola's economy, reducing food import dependence.

4. Cape Verde Labor Policy and Entrepreneur.

So far, our study has focused on Brazil and PALOP countries' agriculture policies. Various countries adopt diverse strategies to address their agricultural industries. Cape Verde aims to enhance active employment measures, which serves as the primary objective of this research.

To gain deeper insights into the Cape Verdean agriculture sector and explore the applicability of the examples, we conducted interviews aligning with this goal to determine how some policies applied before could be replicated in Cape Verde (if possible). However, it's necessary to understand the Agriculture in Cape Verde and the country's current situation.

4.1. Geography and Human Resource Conditions.

The agricultural landscape in Cape Verde is greatly affected by unpredictable rainfall patterns influenced by the hot and dry winds from the Sahara Desert. This increased aridity leads to extended periods of drought (Rodrigues, 2010, 35). It means posing significant challenges to the farming sector. The country's limited land area and susceptibility to soil erosion and other problems resulted in severe consequences for agriculture and the ecological equilibrium (Rodrigues, 2010, 35). The agriculture sector

⁶ Portas abertas para novos investimentos à Agricultura. Retrieved from <https://www.jornaldeangola.ao/ao/noticias/portas-abertas-para-novos-investimentos-a-agricultura/>

is a challenge in Cape Verde; however, the country seems aimed to develop an agricultural market and production.

From July to October, Cape Verde practices rainfed farms during the rainy season, covering approximately 86.2% of the country's cultivated land. (Rodrigues, 2010, 38). Rainfed agriculture cultivation is widespread across all the islands of Cape Verde; however, it proves to be relatively unproductive and inadequate to the nation's cereal and legume needs. Even during years of favorable rainfall and agricultural output, it is estimated that the country can only fulfill about 20% of its cereal needs (Rodrigues, 2010, 38). According to Nelida Teresa Silva Rodrigues, this kind of cultivation is primarily geared towards self-consumption; rainfed production falls short of satisfying the average Cape Verdean family's food requirements due to its limited yield and productivity. At this point, we find similarities with some PALOP countries.

On the other hand, from November to April, Cape Verde engages in irrigated agriculture as the country's only option for agriculture production; however, the proportion of arable land dedicated to this type of farming diminishes significantly. Nelida Rodrigues argued that irrigated agriculture occupied only 12% of the country's landscape during this period (Rodrigues, 2010, 40). In essence, only the areas equipped for irrigation devices can outcome agricultural products during this time. The Well water supply is also important to keep the agriculture production during this time.

Using the graphic elaborated by Filipa Monteiro et al. it's possible to draw the following information about Irrigated and rainfed farms in Cape Verde (see appendix).

Analyzing the agricultural landscape across the ten islands of Cape Verde reveals that Santiago dominates as the most significant island in the archipelago utilized for agriculture, accounting for 52.5% of the total. Santo Antão follows with 16%, and Fogo with 15.8%. Rainfed agriculture remains prevalent across all these islands, serving as the

predominant farming method. It means that agricultural production is only available from July to October. Essential crop productions like maize and beans are cultivated through dryland subsistence agriculture, sustaining local communities. Conversely, irrigated crops such as sugarcane and tomatoes play a central role in commercial agricultural activities, catering to market demands and fostering economic growth (Monteiro F et al., 2020, pp. 1-8).

Regarding arable land distribution, Cape Verde's fertile soils are primarily concentrated on certain islands, with Santiago hosting approximately 58% of these resources (Monteiro F et al., 2020, p. 7). Rainfed crops occupy about 68% of the total arable area, while agroforestry utilizes 26%, and irrigated crops cover 6%, primarily limited to moist slopes (Monteiro, F et al., 2020, p. 8).

As previously mentioned, many West African agriculture countries predominantly rely on rainfed cultivation, leading to a shared challenge of water scarcity. The continuous struggle to overcome water availability limitations remains a critical aspect of agricultural practices in those countries.

According to data published in 2017 from the 2015 Cape Verdean Agricultural Census, many agricultural holdings (99.7%) in Cape Verde continue to be small family-based farm units coexisting with a minority of non-family holdings. Among these farms, a significant proportion (more than 86%) primarily focus on livestock-related activities (RGA, 2015). Commercial agriculture still has an opportunity to develop in Cape Verde.

Compared to the 2004 RGA, Cape Verde witnessed a 2.1% increase in the number of farms, with a significant portion dedicated to irrigated crops (22.2%). However, there was a slight decrease of approximately 1.7% in rainfed farms due to questions about geographical conditions. This can be interpreted as more commercial farms entering Cape Verde's market. The local government has built dams and more infrastructure with

international support, which can drive this increase in irrigated and commercial farms, even though most farmers still have agriculture production based on rainfed.

It's also essential to understand the demographic data about the households on farms in Cape Verde because it is expected that a more professional commercial farm has not had many family members, and what is the position of women in those farms.

From 1988 to 2015, Cape Verde's rural population experienced fluctuations (table 2 see appendix) due to the fact that rural population has decreased and in the recently years it increased again, prompting considerable attention to the demographic dynamics within the region. A notable aspect of these changes is the distribution of gender roles within the agricultural sector. According to data from the Rural Growth and Agriculture Census 2015, men constitute 49.1% of agricultural farmers in rural areas, while women account for 50.9%. It indicates that women are vital and substantial in driving the farming economic activity within Cape Verde's rural regions. (RGA, 2015, 24).

The increasing representation of women in agriculture highlights their crucial contributions to the sector's development and sustenance. This shift in gender roles also suggests the potential for empowering women in rural communities and promoting gender equality within the agricultural landscape. As women's involvement in farming continues to grow, there may be further economic and social advancement opportunities for rural communities in Cape Verde. Understanding these demographic changes can aid policymakers and development organizations in formulating targeted interventions and policies to support and enhance the livelihoods of both men and women engaged in agriculture. Additionally, such insights can foster inclusive and sustainable agricultural practices, promoting overall rural development in Cape Verde (see Appendix)

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Between 1988 and 2004, the population residing and working in rural areas in Cape Verde increased significantly from 172,363 to 222,254, representing a notable 28% rise. However, after 2004, this upward trend began to reverse, and by 2015, the rural population had decreased to 182,396, marking a decline of 17%. Despite this decrease, the number of rural inhabitants remained notably higher than in 1988, reflecting a substantial 5% increase over the entire period. Interestingly, Cape Verde stands out as one of the few countries experiencing a similar rise in the rural population during this time.

In the rural areas of Cape Verde, females have consistently outnumbered males. Another intriguing demographic trend is the decrease in the number of members per rural family from 5.3 in 1988 to 4.3 in 2015, suggesting some migration from rural families.

However, in the general overview, the total number of people living in rural areas of Cape Verde in 2015 is still more prominent than in 1988. It implies that the rural areas attract some people to work and live. Further research is necessary to investigate this topic and gain a comprehensive understanding of the demographic dynamics in the Rural area of Cape Verde.

Women play a prominent role in the farming economic activity within rural communities. Livestock activities hold considerable importance in Cape Verde, reflecting a significant social status according to the Agriculture Ministry of Cape Verde. Family livestock serves as a vital source of income, engaging more than 41,000 families (RGA, 2015), which accounts for about 60% of the rural population and those residing on the outskirts of urban areas. It serves as a means of savings, subsistence, food security (the animals provide milk, eggs, meat, etc.), and an additional income source for rural families. Moreover, it contributes to a particular social status within the community.⁷

4.2. Stimulating Entrepreneurship and Innovation in Cape Verde.

Stimulating entrepreneurship and innovation in agribusiness is a critical aspect of Cape Verde. The country emphasizes fostering entrepreneurial activities and encouraging innovative approaches within the agricultural sector. Cape Verde's Government supports initiatives such as to connect youth and agriculture as mentioned by Cape Verde minister about to instigate Youth's Cape Verdean invest in agriculture business⁸ to nurture entrepreneurship by offering services such as business incubation and training programs

⁷ Pecuaria – Retrieved from <http://maa.gov.cv/index.php/agricultura-e-pecuaria/pecuaria>

⁸ <https://revistacomunidades.pt/cabo-verde-governo-desafia-jovens-a-investirem-na-agricultura-usando-tecnologias/>

and facilitating access to financial resources for startups in the agribusiness sector. It can stimulate the development of innovative agricultural practices, technologies, and value-added products. Moreover, it can help the country reach the improvement goals and qualify labor opportunities for young Cape Verdean people.

The agricultural technology sector, known as Agtech, has experienced significant growth in recent years. International examples show how the connection of different sectors could output interesting results for the country. Such as example, in Cape Verde, there is a large workforce of IT workers developing outsourced functions to international companies. A small country such as Cape Verde develops public policy for startups in agriculture, it could generate a good work combination that can create skilled jobs in Cape Verde. Examples of IT + agriculture businesses are startups such "IZagro" from Brazil, "DeHaat" from India, which offers agricultural services to Indian farmers, and "Puna Bio" from Argentina. "Puna Bio" is an example of the technological match between the IT sector + agriculture in production. It offers new products to the Agriculture market that can help farmers and small-agriculture manufacturers increase their output with ecological consequences. The "DeHaat" and "IZagro" are examples of a company that offers their service to local farmers. It means there are examples of how IT + Agriculture work together internationally.

The incubation of startups at Local universities making this connection between the agricultural sector and technology is one example that could be followed. By nurturing entrepreneurship and fostering innovation, Cape Verde can reach an environment supporting agribusiness growth and advancement.

By actively supporting initiatives that nurture entrepreneurship and provide startup resources, drawing inspiration from successful international examples can show how Cape Verde can explore the potential of connecting different sectors, such as IT and

agriculture, to develop business opportunities for economic growth and job creation. It contributes to the country's sustainable development and economic prosperity.

5. Conclusion.

Enhancing agricultural productivity and promoting sustainable agribusiness development in Cape Verde requires a multi-faceted approach. Some public policy strategy interventions in countries such as Brazil and Angola could be used as an example for Cape Verde.

The Cape Verde government has implemented water management and conservation measures in select regions to enhance irrigation and local farm production. They have also advocated for efficient drip irrigation systems to maximize the use of limited water resources available in the country.

In Brazil, the government has established public policies to educate the agribusiness sector. Using this as a model, Cape Verde might launch similar training initiatives. Brazil's training centers on contemporary farming methods, agribusiness management, and skill enhancement, with a strong emphasis on labor market integration and advanced agricultural practices.

Cape Verde's youthful population presents a distinct advantage. By using educational campaigns and market incentives, there's an opportunity to attract the youth generation to agriculture. With a significant number of young workers, Cape Verde can lead this workforce into innovative agricultural ventures. Engaging businesses and startups to connect this young demographic with the agricultural sector it can substantially rewards and innovation brings. Taking as example from Brazil, where agribusiness is associated not just with hard labor but with new technology, Cape Verde can transform its agricultural sector using the Cape Verde's youthful population and innovative ideas to connect IT + Agriculture sector.

Despite geography challenges like water scarcity, the use of technological methods such as irrigation and the participation of startups can significantly enhance agribusiness farms in Cape Verde. Insights from other countries such as Brazil and Angola, including successes and failures in rural employment strategies, can provide valuable lessons for Cape Verde. The strategies must be tailored to fit Cape Verde's unique landscape, culture, and needs, and could involve controlled government participation in agricultural marketing, collaboration with NGOs, and community engagement.

Promoting employment in rural areas has broader implications beyond economic growth; An empowered agricultural sector could reduce reliance on imports, improve food security and diversity, and enable the development and export of value-added products.

In conclusion, a strategic involvement of startups in Cape Verde's agriculture sector, guided by government policies and international collaboration, can foster employment, revitalize rural areas, and contribute to the nation's growth. The experiences and policies of countries like Brazil and Angola could serve as guides for this transformative process in Cape Verde. It's possible to learn about different investment approach. Brazil is a large country with a powerful agribusiness sector, the investments in agriculture are by private sector and government. In Cape Verde it's possible to learn how Brazil organized the Public Policy for agriculture and private investment. On the other hand, Angola can teach Cape Verde how to diversify their economy using few resources to promote in the countryside the development.

The agriculture sector can ensure food security and enhances diversity and nutritional standards. Moreover, it paves the way for developing and exporting value-added products, boosting the nation's economic profile. As demonstrated by situations like

Angola's experience, over-reliance on a single sector can be problematic, significantly so when global disruptions happens, like during the COVID crisis, where the supply chains disruptions created serious problems for Cape Verdean Economy.

There is a huge potential participation of startup companies in Cape Verde's agriculture sector, guided by government policies and international examples. Yet, the success of this endeavor in Cape Verde agriculture Public Policy required to adapt these strategies to the Cape Verde's specific circumstances.

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