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ABSTRACT

Food availability is influenced by the means of production. A decrease in production affects market prices. In Benin, food production is changing. This paper seeks to analyze the influence of the professionalization of work, the use of new technologies, and individualism on agricultural production. Two data sources are used: the National Agricultural Census core module and the Harmonized Framework based on the World Food Programme food security survey, the results of the 2021-2022 agricultural season, the caloric proxy, shocks, historical variations in agricultural production, agricultural commodity prices, access to drinking water and improved toilets, and the seasonal calendar. Contributing factors related to food availability and access influence food consumption and livelihoods. On farms, 81.6% of farms are part-time, with 2/12 months for non-professionals, and 7-8/12 months for professionals. Respectively 2.0%, 6.9% and 11.9% keep accounting, have access to credit, and are affiliated in agricultural producers' organizations.

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Classification: FOR CODE: 070199

Language: English



London
Journals Press

LJP Copyright ID: 925631
Print ISSN: 2631-8490
Online ISSN: 2631-8504

London Journal of Research in Science: Natural and Formal

Volume 23 | Issue 4 | Compilation 1.0



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Professionalization of Agricultural Work in Benin

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ABSTRACT

Food availability is influenced by the means of production. A decrease in production affects market prices. In Benin, food production is changing. This paper seeks to analyze the influence of the professionalization of work, the use of new technologies, and individualism on agricultural production. Two data sources are used: the National Agricultural Census core module and the Harmonized Framework based on the World Food Programme food security survey, the results of the 2021-2022 agricultural season, the caloric proxy, shocks, historical variations in agricultural production, agricultural commodity prices, access to drinking water and improved toilets, and the seasonal calendar. Contributing factors related to food availability and access influence food consumption and livelihoods. On farms, 81.6% of farms are part-time, with 2/12 months for non-professionals, and 7-8/12 months for professionals. Respectively 2.0%, 6.9% and 11.9% keep accounting, have access to credit, and are affiliated in agricultural producers' organizations.

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I. INTRODUCTION

Agricultural policies primarily affect farmers' income (Jacques R., 1987). To implement them and hope for a positive outcome, it is necessary to identify who is a farmer. A clear answer to this

question remains a challenge in many African countries. Although the majority of African managers have emerged from the agricultural and peasant environment where they spent their early childhood, they do not spontaneously accept to practice as professionals in agriculture. Even when they have a degree in agronomy, becoming an agricultural professional is not always a priority option. Is this a deliberate choice or a situational constraint? The explanations must be sought in their daily lives. The shortcomings of the agricultural sector to date are rooted mainly in the lure of profit.

Population growth translates into a growing need for food and agricultural products, amplified by changes in diets and the types of products consumed, induced by economic development and its rapid urbanization (Pauline Marty, 2015). African countries are doing enough to establish this causality. Governments have become aware of the backlog in rural and agricultural development. For several decades, oil rents, advances in communications and tourism made sourcing from world markets easier than increasing local production and improving transport and distribution channels between hinterlands and capitals (Chantal Le Mouël, 2015). Multinational companies are supporting massive imports to southern countries; pushing some agricultural sectors are substituted by cash crops without taking into account the career profile of the farmer. Benin is not on the fringe of this dynamic.

In Benin, agricultural production is in deep mutation. It is increasingly documented and receives special attention from public authorities. This contribution aims to analyze the influence of the professionalization of work, the use of new technologies, and individualism on agricultural production. The direct effects on food security, in general, are not omitted. The characteristics of

professional agrarian work, and its configuration in Benin should be investigated. Identifying the factors that influence it will also lead to the perverse effects of a lack of professionalism in the agricultural sector. Two data sources are used: the National Agricultural Census and the Harmonized Framework based on the WFP food security survey.

II. DATA AND METHODS

An orthodox analysis leads to a search for the determinants of the professionalization of agricultural work among different factors. These factors are

- a. The profile of the agricultural family (sex of the farmer, age, level of education, marital status, parity, number of members in the family, type of land owned by the household (gift/inheritance/rental/lease/metayage/other));
- b. Bookkeeping;
- c. Access to credit;
- d. Membership in an Agricultural Producers' Organization;
- e. Average farm size with the possibility of plot rotation;
- f. The type of farm (crop/animal/fish production);
- g. Control of the value chain (production, processing, marketing);
- h. Work tools and means of operation.

national census of agriculture in Benin was made public in the first quarter of 2022. It exhaustively collected all the variables of interest to analyze the Agro-Sylvio-Pastoral sectors in the 77 Communes of the country. The variables collected made it possible to draw up a profile of agrarian households and to identify the sectors of activity, the means of operation, the types of activities, the level of professionalization, the use of mechanization, the areas sown, etc.

As the analysis of the basic module of the national agricultural census is still in progress, the option has been taken to present in this paper the effects associated with the low professionalization of agricultural work in Benin. It will be done through the Harmonized Framework (HF), which maps

vulnerability to food insecurity. The analysis of the Harmonized Framework of March 2022 was conducted with the contribution of government technicians, and civil society actors such as NGOs. The March 2022 HF session analyzed all 77 communes in Benin. The analysis consisted of an inventory of available evidence. It consisted of outcome indicators from the WFP's Global Analysis of Vulnerability, Food Security and Nutrition (GIVSAN), contributing factors related to hazard and vulnerability, and the four (4) dimensions of food security. The food security indicators are food consumption score, household dietary diversity score, source of food consumed, coping strategies, livelihoods and income sources, household expenditure structure and access to credit, shocks and vulnerability. Subsequently, the evidence was analyzed and reliability scores were assigned to the various pieces of evidence, communes and populations were classified in their current and projected situations, food-insecure populations were estimated and maps and results were produced.

III. RESULTS

Benin has 926,539 agricultural households, according to the first national agricultural census. 80.6% of non-professional workers in the agro-silvicultural sector work part-time, i.e., two months out of twelve. Professionals work annually for seven months out of twelve. The characteristics that limit the professionalization of agricultural work in Benin have an impact on household food security.

3.1 Limits to the professionalization of agricultural work

The limits to the professionalization of agricultural work have their sources in the structural, social, cultural, environmental, technological and economic spheres.

3.2 The structural sphere

Control of the means of production is the primary factor in professionalization. 95.6% of agricultural households are involved in crop production, and 65.4%, 5.4%, 0.4% and 6.2%, respectively are engaged in animal production, fishing,

aquaculture or forestry. Access to inputs and small agricultural equipment is a constraint for small producers. The government of Benin, through its new guidelines, wants to take up this challenge by encouraging civil society to give itself the means to access them. The rate of mechanization of soil work is 12.4%. Of the total exploitable land, 43.9% are sown, with an average size of 3.3 ha per farming household. Of the total exploitable land, 6.2% is fallowed, and 1.76% is irrigated (MAEP, RNA, 2019). The prices of agricultural products on the market are not very remunerative when the farm is small, is not structured, and is because of the current economic situation.

3.3 Social Aspects

The average age of the heads of agricultural households is 43.5 years (MAEP, RNA, 2019). At this age, the home society must have proof of contribution from its non-disabled members. Usually those who have not completed primary or secondary school return to work the land. The school orientation towards agricultural fields is not widespread in Benin. The opening of a national university of agriculture in Kétou will undoubtedly change this situation.

Benin has been subdivided into seven (7) agricultural development poles (PDA). The size and scope of the farms vary according to the poles. PDAs 7, 4 and 5 have more farms (PDA 7 Ouémé, Atlantique, Mono, Littoral : 222,078; PDA 4 Borgou Sud, Donga, Collines : 221,201; PDA 5 Zou, Couffo: 177,639) than the other four (4) (MAEP, RNA, 2019). These are essentially areas that offer more outlets for agricultural products. They are close to areas where cross-border trade is very dynamic. Crossed from North to South, and from East to West by international roads, these areas benefit from significant investments in trade and communication infrastructure.

3.4 The Cultural

15.7% of agricultural households are headed by women (MAEP, RNA, 2019). This statistic calls into question the cross-cutting themes of "Gender", "Cross-cutting protection", "Positive

discrimination" and "Inclusion". One of the characteristics of farms in Benin is that they are the result of individual initiatives at the family level, with a heritage/land capital transferred from generation to generation. There is little room for the association of energies in the form of collective entrepreneurship or consortium.

3.5 The Environment

The agricultural calendar, with its rainy seasons, is associated with professionalization. The agroecological ecosystem and soil mapping, which are poorly documented, also have an impact. There are four seasons in the South and two seasons in the North. There is a long and short rainy season and a long and short dry season in the south. In the northern zone, there is only one rainy season and one dry season. The lack of water control is a result of climatic variations and rainfall breaks.

3.6 Technology

The use of information and communication technologies in Benin is increasing and covers very little of the agro-sylvo-pastoral sphere. A platform bringing together research centers in this area has been set up under the leadership of the National Institute of Agricultural Research of Benin (INRAB), which acts as its secretariat. One of the goals of this platform is to disseminate innovations in the agricultural field to producers. Despite these efforts, only 2% of farms in Benin keep accounts. The processing of agricultural products is the work of 25.0% of farm households (MAEP, RNA, 2019). Few farms use a full-time skilled labor force. Instead, they use seasonal workers and sharecroppers. This personnel has no formalized contractual relationship with their employers. This leaves room for violations of several rights. Graduates of agricultural schools often prefer salaried jobs far from the farms. In addition, they often need additional training in technology, project management, and the use of agricultural machinery.

3.7 The Economy

For various reasons, 22.8% of farm households manage to market their products. In terms of the

rate of banking in the West African Monetary Union zone, Benin leads with 31.2%, followed by Togo (27.0%), Burkina Faso (20.6%), Côte d'Ivoire (20.4%) and Senegal (19.6%) (Wadagni Romuald, Economie, 2020). Despite the proliferation of microfinance institutions, 6.9% of farmers have access to credit. 11.9% of agricultural households are affiliated with an OPA (MAEP, RNA 2019). Although they are plural, the limits of agrarian professionalization are not insurmountable. However, until effective solutions are found, different levels of life in society suffer.

3.8 Effects of non-professionalization

The analogies of the non-professionalization of agricultural work affect the basic social unit, the micro-economy, and the macroeconomy.

3.9 In the Basic Social Unit

37.7% of Beninese have a relatively acceptable index of accessibility and quality of services. They are more concentrated in Cotonou (UNDP, 2022). The lack of professionalization of agricultural work limits the access of agricultural households to a substantial remuneration and therefore to basic sanitary/social infrastructures: drinking water, improved toilets, health care, education for children, decent housing, appropriate means of communication, etc. According to the latest Benin Sustainable Human Development Report (UNDP, 2022), access to basic sanitation and hygiene was 32.2% for ECOWAS in 2020, while in Benin, the same indicator was 17% (WFP/INSTAD, AGVSAN, 2017). The main reason is low purchasing power. 47% of Benin's population experiences extreme poverty and material deprivation (UNDP, 2022). This translates into poor access to food. As a result, 9.6% of households have a moderate to severe food security index. Of these households, 15.2% spend more than 65% of their income on food and 27.8% use crisis or emergency coping strategies (WFP/INSTAD, AGVSAN, 2017). Access to technology and innovations is a luxury for them. 2/10 Beninese have a broadband internet subscription (UNDP, 2022). This places Benin

among the last four (4) countries in the sub-region in this area.

3.10 At the Microeconomic Level

The lack of professionalization is declining production and productivity in the agro-sylvo-pastoral sectors. Low production naturally leads to a limited supply of markets and their dysfunction. Limited income leads households to renew their means of existence without, however, guaranteeing significant purchasing power.

3.11 At the Macroeconomic level

The low level of professionalization of agricultural work affects GDP and tends to increase imports while limiting formal exports. Observation of agricultural statistics over the last three decades shows historical variations in agricultural production.

3.12 For the meta-analysis

According to the harmonized framework exercise, the mapping of food insecurity makes it possible to classify the analysis zones into phases: minimal, pressure, crisis, emergency, famine. In the current situation (March to May 2022), eleven communes (Aplahoué, Klouékanmè, Lalo, Toviklin, Dogbo, Djakotomey, Athiémè, Toffo, Allada, Bassila, and Glazoué) are in phase 3 "Crisis". These communes have been exposed to shocks (drought, floods) that have weakened their resilience. The populations in the Crisis to Worst phase at the national level are estimated at 1,225,957 people (or 9.49%). 41 communes are in phase 2 with 2,754,478 people in borderline food security. 25 communes are classified as minimal phase with 8,934,565 people in food security. In the projected situation (June to August 2022), one (01) Commune is in the Crisis phase (Bassila), 32 Communes are in Phase 2 (Under Pressure) and 44 are in the Minimum phase. At the national level, the food-insecure population is estimated at 830,150 people. The number of borderline food-insecure people is 2,318,231. The estimated food-insecure population is 9,766,619 people (MAEP, CH, March 2022).

Overall, the contributing factors of availability (overall increase in production compared to the average of the past five years) and access (increase in the price level of staples compared to the average of the past five years) have affected the majority of municipality food consumption and livelihoods, therefore household food security (APRM, CH, March 2022).

IV. DISCUSSION & CONCLUSION

This contribution provides evidence of the profitability of agricultural work linked to professionalism in this sector in Benin. The temporal limits observed in the sector can be explained either structurally or cyclically, individually or collectively, or by the family sphere or the physical environment. The consequences of the low professionalization of agricultural work are visible in the daily life of the basic social unit, the family. They are reflected in the dynamics of the local economy and in the economic aggregates. The meta-analysis carried out through the Harmonized Framework provides an up-to-date and factual mapping of the severity of food insecurity due in part to the limited availability of food, essentially linked to the professionalism of the work that should produce it.

This study is trying to combining empirical analysis with meta analysis. It does not pretend to present a cause-and-effect relationship between the professionalization of agriculture and food security. Still, it attempts to identify the explanatory elements of the level of profitability of the agro-sylvo-pastoral domains. This is part of the roots of current food security situation in Benin. The present contribution provides updated statistics that open up avenues of research in fields as varied as rural sociology, agronomy, technology, human resource management, rural development, etc. The results presented are comparable to previous work.

In Madagascar, the average age of farmers is higher than in Benin (48 years versus 43.5 years) (Razafimahatratra Mamy Hanitriniaina et al., 2017). In France, this age is even higher. Over half of farmers are ranged 50 years old or older

(Olivier Chardon et al., 2020). In 2019, three-quarters of French farmer-operators were men, a proportion that has been increasing over the past forty years. In this country, on average, farmers work longer hours per week than all employed people, and they usually work in the week-end :Saturdays or Sundays. Four times fewer farmers work than forty years ago. While in Benin, the working time in the agricultural sector is decreasing. On an annual basis, professionals work only 7/12 months.

If in Benin individualism seems to be more important, in Madagascar, farms associate several members of the siblings. This guarantees labor and ensures a good redistribution of the farm's income as well as self-support (Razafimahatratra Mamy Hanitriniaina et al., 2017).

The encouragement to invest in agriculture is underway in Benin to the benefit of economic liberalization. Indeed, it is an asset for boosting the agricultural sector, but it should not be misunderstood because, at times, it fuels more non-agricultural growth, exerts land pressure, aggravated locally by unequal access to land, water and value added. Such a structural transformation calls for adapted institutional and technical innovations (Bruno Dorin and Claire Aubron, 2016). In India, for example, we are at 0.65 ha/agricultural asset, whereas in Benin, we are already at 3.3 ha per farm. This also seems high in contrast to the average size of farms in Madagascar which is 215.6 ares (Razafimahatratra Mamy Hanitriniaina et al., 2017).

The low professionalization of agricultural work is not only the case in Benin. Dumont Antoinette has, in her PhD thesis, shown that the contracts and statuses of agricultural workers are very variable in Wallonia Belgium: 37% seasonal, 20% CDI, 12% undeclared, 10% local aid employment contracts, 9% CDD, 5% students, 7% independent. (Dumont, Antoinette, 2017). Such a quantification of the agricultural labor market in Benin is not yet a reality. It would be utopian to address the issue of contracts in the agricultural sector. However, it is the document that formalizes the links between the employer and the employee. In the absence of such evidence, it is difficult to distinguish career

prospects, nor to guarantee full enjoyment of the rights of agricultural workers.

In essence, the agricultural sector requires several types of profiles depending on the requirements of the positions: mechanical positions with repetitive acts, coordination positions, thinking positions that require initiative and creativity, surveillance and security positions, positions that require gentleness and sensitivity. In Benin, it is common to find the same person performing several of these functions on farms. This person is sometimes paid in kind. The problem of continuous training in the agricultural sector is thus raised.

Given the average age of Beninese farmers (43.5 years), there are opportunities. If a farmer has ambition, he must cultivate himself to produce differently. Tommy Collin-Vallée et al. have posed fundamental questions for the professionalization of the farm worker: how to produce differently? how to learn to do so? what to learn? who should learn? under what conditions? What consequences can be drawn from new learning? (Tommy Collin-Vallée, Maryvonne Merri, 2020). It is by identifying the appropriate answers to these questions that the professionalization of agricultural work in Benin can become an undeniable reality.

Conflict of Interest Statement

The authors state that there is no conflict of interest.

ACKNOWLEDGEMENT

We wish to acknowledge all the contributors such as field staff, health and administrative authorities without whom this survey could have not been carried out. And thanks to all reviewers.

Consent for Publication

The authors grant his consent for publication of this paper.

Funding

The writing of this paper has not been funded or sponsored. It was done at the author's expense.

Data Availability Statement

The data used in this paper is fully available and can be accessed upon request.

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