



Agricultural strategies and employment: An analysis of the impacts of the Plan Maroc Vert (PMV) in Morocco

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Abstract: This article aims to evaluate the impact of the Plan Maroc Vert (PMV) on agricultural employment in terms of job creation as well as employment quality improvement. It also aims to determine the contribution of this plan to agriculture sector development.

Our findings indicate that the PMV's impact on employment in the Moroccan agricultural sector was gradual. The policy has a positive impact reflected by some positive job creation in the later years, particularly the 2017-2019 period. However, the sector remained volatile and highly dependent on external factors, since its contribution to total employment was more of downs than ups.

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Also, our analysis conclude that the agricultural sector's share of GDP is generally stable, which indicate a limited structural transformation or productivity gains in the agricultural sector that offset the potential decline in labor force.

Keywords: Agriculture sector, Employment, PMV.

JEL Classification : Q18, J43, O1.

Introduction

Numerous agricultural strategies have been implemented worldwide to modernize the agricultural sector, which is central to global economies. This is particularly true in developing countries, where it serves as a key driver of economic growth, food security, and job creation.

In Morocco, agriculture plays a fundamental role in the national economy. It represents a significant share of GDP, employs a large portion of the active population, and is a major pillar of rural development.

Aware of these stakes, Morocco launched the "Plan Maroc Vert" (PMV) in 2008, an ambitious strategy aimed at modernizing and revitalizing the agricultural sector through a dual approach: developing intensive and competitive agriculture on one hand and supporting small-scale farms on the other.

This strategy sought to improve productivity, attract private investment, strengthen agricultural exports, and promote sustainable management of natural resources.

However, despite its ambitions and notable economic results, the PMV's impact on agricultural employment remains a subject of debate. While the modernization of the sector has led to the emergence of higher-value-added agricultural activities, it has also brought about structural changes that may have mixed effects on the labor market: the creation of new jobs in certain sectors, the

disappearance of traditional jobs, and the increased precariousness of certain categories of rural workers, among others.

In light of these challenges, our study aims to assess the impact of the PMV on employment in Morocco, in terms of jobs creation (quantitatively) and jobs quality improvement, based on a rigorous and multidimensional analysis.

The main research questions guiding our article are as follows:

- To what extent has the PMV influenced the evolution of employment in the agricultural sector in Morocco?
- Which impact it has on Jobs creation in the Moroccan agricultural sector? What about its qualitative impact?

The significance of this study is twofold. On one hand, it will provide a better understanding of the actual effects of the PMV on agricultural employment, shedding light on both its benefits and limitations. On the other hand, it will offer valuable insights for the development of future agricultural strategies.

To answer this, the article is structured into three parts. The first part traces the history of agricultural strategies in Morocco, with a focus on the PMV objectives. The second part provides a review of national and international literature on the impact of agricultural strategies on employment. Finally, the third part analyzes stylized facts based on available data to assess the effect of the PMV on employment.

We also note that, to address this research question, a mixed methodological approach will be adopted. The study will rely on a

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periodic comparative analysis, enabling the examination of trends in agricultural employment indicators before and after the implementation of the PMV, as well as an in-depth synthesis of reference documents, including institutional reports, sectoral studies, and academic publications.

By combining these methods, this study aims to provide a rigorous and objective assessment of the PMV's impact on employment, thereby contributing to the academic debate and informing future agricultural policy directions in Morocco.

1. Agriculture policies in Morocco

Since gaining independence, Morocco has implemented several strategies aimed at structuring and modernizing its agricultural sector. Authorities adopted, in the period following Morocco's independence, an interventionist model of agriculture focused on food self-sufficiency. They implemented agricultural policies centered around an import-substitution strategy to ensure food security.

These policies were integrated into economic and social development plans, focusing on launching irrigation programs; modernizing and intensifying agriculture through modern techniques (mechanization, fertilizers), adopting incentive policies, like subsidies and taxation, as well as implementing accompanying economic and institutional measures. These measures included reclaiming colonized lands, establishing technical support structures, adopting an agricultural investment code, and reforming the agricultural credit system.

Starting in the 1980s, agricultural policy shifted to a more liberal approach, emphasizing market forces and openness to international trade. Reforms included devaluing the national currency, introducing market-based pricing for certain food products, deregulating credit, and removing taxes on agricultural income.

These changes improved the sector's profitability, encouraging land ownership and investment, particularly benefiting large-scale producers. Despite certain shortcomings, public policies have led to successes, reinforcing agriculture's role in economic growth.

However, these developments sometimes occurred at the expense of natural resources. In addition, despite its strategic importance and the progress made through all these policies, Moroccan agriculture sector was still facing numerous challenges, such as low agricultural productivity, a production growth largely resulting from expansion into marginal lands rather than intensification and low competitiveness.

Aware of these constraints and future challenges, the Moroccan government developed a long-term strategy to address them. This strategy, known as the "Plan Maroc Vert" (PMV) for the 2008–2020 period, aimed to harness Morocco's many agricultural assets, including renewable water resources, production infrastructure (irrigation systems, tree plantations), accumulated agricultural expertise, soil and microclimate diversity, biodiversity, proximity to international markets, and potential improvements through integration into global value chains—particularly in the green economy.

The PMV addressed key sectoral constraints and strengthened agriculture's transition to a more market-oriented system. It sought to create a balanced sector, moving away from a dualistic structure toward a two-pillar model.

The first pillar focused on developing a modern, high-value, high-productivity agriculture sector driven by market forces and a central role for the private sector. The second pillar emphasized social support for small-scale farmers by increasing their incomes through agricultural intensification, product diversification, and the development of local agricultural products. Institutionally, the PMV represented a shift in the state's intervention approach, relying on public-private partnerships (PPP) to compensate for private sector shortcomings.

1.1. Moroccan Agriculture policies before 2008:

The Kingdom generally distinguishes four phases in the evolution of agricultural policy reforms. The first one, during the period 1960–1972, was marked by the implementation of three plans: a first five-year plan (1960–1964), a second three-year plan (1965–1967), and a third five-year plan (1968–1972).

During this initial phase, policies and reforms in the sector revolved around the adoption of an import-substitution policy to ensure food security. This involved launching the irrigation program (construction of dams), modernizing and intensifying agriculture through the use of modern techniques (mechanization, fertilizers), and implementing incentive policies (subsidies, taxation, etc.). Additionally, a series of economic and institutional support measures were introduced, such as the recovery of officially colonized lands, the establishment of technical support structures for the sector and the adoption of an agricultural investment code as well as the reform of the agricultural credit system.

During the period 1973–1982, the Kingdom allocated more resources to agricultural development, thanks to the increase in phosphate prices in 1973 and 1974 and easier access to financial resources. This led to an acceleration in the development of hydro-agricultural infrastructure, the creation of plans for the development of key agricultural sectors, and the expansion of aid and subsidies granted under the agricultural investment code.

Public authorities also adopted a more proactive approach to promoting agricultural exports. This policy was implemented alongside a series of institutional measures, namely the enactment of legislation concerning the "Moroccanization" of privately colonized lands and the introduction of an agrarian reform law. The primary objective of the agrarian reform law was to create sustainable agricultural units. Furthermore, it systematically organized the allocation of colonized lands and the reallocation of collective lands within extensive irrigation zones. These lands were redistributed as agrarian reform farms, which were required to operate as service cooperatives.

In parallel with these sectoral policies, several macroeconomic policies directly or indirectly influenced the evolution of the agriculture sector in Morocco. The first of these policies was the strategy of competitiveness through low wages, accompanied by consumer subsidies and market and price controls on agricultural products.

In fact, starting in the 1980s, there was a shift in the orientation of agricultural policy. It moved from an interventionist model focused on food self-sufficiency to a model that placed greater emphasis on market forces and international trade.

The reforms gradually introduced during this period were part of the structural adjustment program applied to various sectors of the national economy. These reforms included redefining the role of public intervention bodies and subjecting their management to market imperatives, while government actions focused on essential public services (such as research and agricultural extension); Setting strict investment priorities for agricultural infrastructure, favoring more cost-effective solutions, such as small-scale irrigation instead of large-scale irrigation projects; Reducing state subsidies for production inputs and basic food consumption, while opening relevant sectors to competition, such as wheat flour, sugar, and vegetable oils (this shift aimed to establish a policy of "price truth" for both production and consumption) and liberalizing agricultural trade and inputs by eliminating restrictions on domestic and international trade, including monopolies, quotas, and other restrictive regulations on agricultural products.

However, the assessment of these reforms shows that, while they were significant, the most "sensitive" and decisive reforms were not fully implemented (N. Akesbi, 2011¹). For instance, the liberalization of imports for most processed food products and many other agricultural goods continued, although protection levels remained higher than initially planned (with tariff duties reaching 45% instead of the expected 35% for other products). Except for soft wheat, the commercialization and pricing, both at the production and consumption levels, were liberalized. The same applied to milk and dairy products, whose price liberalization process was completed in 1993.

Therefore, since 1994, structural adjustment programs have been gradually phased out, but trade liberalization has continued and even strengthened. As a signatory of the agricultural component of the World Trade Organization (WTO) Agreements, Morocco committed to eliminating all non-tariff barriers and converting them, where necessary, into "tariff equivalents," which were to decrease by 24% over ten years.

Thus, despite various difficulties and resistance, this multilateral commitment was upheld: quantitative restrictions on imports were abolished in 1996, tariff equivalents were introduced, and then reduced according to a schedule that was completed in 2004.

Alongside this multilateral liberalization, Morocco also initiated a process of trade liberalization at the bilateral level. The free trade agreements signed by the Kingdom progressively introduced greater agricultural price liberalization (such as the agreement signed with the United States, the one with Tunisia, Egypt, and Jordan as well as the one signed with Turkey and the most significant agreement, which came into effect in 2012, signed with the European Union).

All of these agreements include significant agricultural provisions. They facilitated the redeployment of state resources, as envisioned by the structural adjustment program applied to agriculture, particularly in terms of budgetary constraints. Due to limited financial resources, technical support agencies had to scale back the assistance they provided to small farms. Similarly, the state's withdrawal from supporting so-called "integrated" agricultural production led to a significant reduction in agricultural loans.

In addition, the overall amount of agricultural credit declined significantly, the share allocated to small and medium-sized farms progressively decreased—from 24.94% in 1996 to 16.91% in 2000.

Then, aware of the structural constraints in agriculture, despite all policies implemented, the Moroccan government developed a long-term strategy in order to address the challenges that the sector still faces.

This strategy, known as the Plan Maroc Vert (Green Morocco Plan -PMV) for the 2008-2020 period, is built around leveraging Morocco's numerous agricultural potentialities. These include renewable annual water resources, productive capital (such as irrigation infrastructure and tree plantations), accumulated expertise in the agricultural sector, rich biodiversity, proximity to international markets, and opportunities for progress by integrating into global value chains, particularly within the framework of green growth.

In short, the PMV is an ambitious strategy aimed at transforming the agricultural sector into a true lever for socio-economic development in Morocco. Its objectives include accelerating growth, reducing poverty, and strengthening the integration of agriculture into national and international markets.

1.2. Plan Maroc Vert 2008-2020:

Launched in 2008, the PMV aims to modernize agricultural value chains, enhance productivity, and improve the living conditions of farmers. It aims to generate significant socio-economic benefits in terms of value-added production, investment, job creation, and income improvement for farmers. It also seeks to incorporate the social, territorial, and human dimensions of the sector while ensuring better valuation and sustainable management of natural resources.

This new agricultural strategy is, in fact, based on two big pillars, namely the development of high-performance agriculture oriented toward international markets, and solidarity-based support for small-scale farmers.

The first pillar of the PMV focuses on developing a modern, high-value-added, and high-productivity agriculture that complies with market regulations, with a central role for the private sector. The second pillar targets the social support of small-scale farming, aiming to improve the incomes of the most vulnerable farmers.

To achieve this, the strategy includes projects for conversion, intensification, and diversification, benefiting from direct government support to increase agricultural incomes by 2 to 3 times for 3 million rural inhabitants.

i. Main objectives of the PMV:

The strategy is built around seven key axes. Firstly, it seeks to position agriculture as the primary driver of growth over the following 10 to 15 years after its implementation, with targets such as increasing agricultural GDP, creating 1.5 million additional jobs, improving agricultural income, and boosting export value.

Secondly, the plan promotes aggregation as a model for organizing agriculture. This includes introducing a new subsidy system, providing preferential access to land, financing, and benefits from interprofessional organizations, and establishing an investment guarantee fund.

¹ Akesbi N., « La nouvelle stratégie agricole du Maroc annonce-t-elle l'insécurité alimentaire du pays ? », *Confluences Méditerranée*, 2011/3 N° 78, p. 93-105.

Thirdly, it aims to ensure the development of Moroccan agriculture as a whole, without exclusion. This involves fostering a modern, high-value agriculture (Pillar I) while providing solidarity-based support to small-scale farming (Pillar II).

Fourthly, the plan encourages private investment supported by public aid, with the goal of attracting an annual investment of 10 million dirhams through a targeted "Morocco Offer." Fifthly, it adopts a contractual approach to implement the Green Morocco Plan, aiming to carry out 1,500 concrete projects.

Sixthly, the plan focuses on ensuring the sustainability of Moroccan agriculture. This includes integrating climate change considerations into project design, converting nearly one million hectares of cereal crops to fruit plantations to protect agricultural spaces, supporting the use of water-efficient irrigation systems, and promoting the development of renewable energy use.

Finally, the Green Morocco Plan aims to overhaul the sectoral framework through a new land policy, a new water policy, tax reforms, modernization of the national market, and enhanced support, monitoring, and evaluation mechanisms.

ii. *PMV & Employment:*

The strategy places particular emphasis on job creation and the improvement of working conditions in the agricultural sector, which constitutes a significant share of the Moroccan economy and employs approximately 40% of the active population (World Bank², 2020).

The main pillars of PMV's employment strategy are as follows:

- **Direct and Indirect Job Creation:** The program aims to generate employment within modernized agricultural holdings, the agro-industrial sector, and agriculture-related services (logistics, processing, and commercialization). In addition, agricultural aggregation projects, which integrate small farmers into large enterprises, contribute to the creation of stable jobs and the enhancement of local skills.
- **Combating Rural Unemployment:** By modernizing agriculture and developing high value-added sectors (such as arboriculture, olive growing, and market gardening), the PMV seeks to reduce unemployment and underemployment in rural areas. Irrigation and agricultural infrastructure programs also create both temporary and permanent employment opportunities.
- **Skills Development and Training:** The PMV emphasizes professional training for farmers and agricultural workers to equip them with the necessary skills for adopting new technologies and agricultural practices. Additionally, training centers and capacity-building programs have been established to enhance productivity and improve income levels.
- **Promotion of Agricultural Entrepreneurship:** The plan encourages young people and women to engage in innovative agricultural projects, offering financial support and technical assistance. Also, agricultural cooperatives and Economic Interest Groups are supported to foster self-employment and social inclusion.
- **Impact on the Labor Market:** The PMV contributes to reducing rural exodus by creating economic opportunities in

rural areas. It also helps diversify household income sources, thereby reducing precariousness and improving living conditions.

In conclusion, the PMV articulates a clear vision for employment and the labor market: transforming agriculture into a sector that generates wealth and opportunities while ensuring social inclusion, economic sustainability, and environmental resilience.

1.3. **Generation Green Strategy 2020-2030:**

Launched in February 2020 by King Mohammed VI, "Generation Green 2020-2030" is Morocco's new agricultural strategy, succeeding the PMV. It aims to build upon and deepen the achievements of the PMV by placing greater emphasis on human capital and the enhancement of agricultural value chains.

Thus, "Generation Green 2020-2030" is built on two fundamental pillars: the priority to human capital and a sustainable agricultural development. The main goal is to double the sector's contribution to the Kingdom's GDP. It also aims to reduce the trade deficit by exporting more, particularly high-value-added products. In addition, one million hectares of collective lands will be mobilized, creating around 350,000 new jobs.

Thus, the Royal Guidelines have set clear and precise objectives for the new agricultural strategy:

- The agricultural sector can be a more effective provider of employment and a more efficient instrument for ensuring better living conditions and settlement in rural areas.
- We call for the consolidation of achievements in the agricultural sector and the creation of new income-generating activities, particularly for young people in rural areas.
- Our ultimate goal is to foster the emergence of a rural middle class.
- We guide the government to develop innovative mechanisms that encourage farmers to join agricultural cooperatives and productive agricultural groups.
- We call for the strengthening and facilitation of investors' access to land.
- We seek justice for small farmers, particularly regarding the commercialization of their products.
- The mobilization of agricultural lands belonging to ethnic communities for agricultural investment projects is a strong lever to improve the overall socioeconomic living standards, especially for the rightful beneficiaries.

Generation Green's employment objectives

One of the strategy's major focuses is the creation of stable and higher-quality employment in the agricultural and agro-industrial sectors. The key employment-related objectives are the integration of youth into the agricultural sector, through the creation of 350,000 to 400,000 jobs for youth in the agricultural and agro-industrial sectors and the establishment of an "entrepreneurial farmer" status to encourage youth to invest in agriculture as well as the facilitation of access to collective lands to enable young people to establish their own agricultural operations.

The strategy also aims to promote entrepreneurship and integration of rural youth, through the creation of 600,000 new jobs in rural areas, particularly through agricultural cooperatives and start-ups

² World Bank, 2020. Morocco Economic Monitor: Leveraging the Potential of Cities for a Stronger Recovery.

as well as the support for youth through agricultural incubators and specialized training programs to modernize agricultural practices and foster innovation.

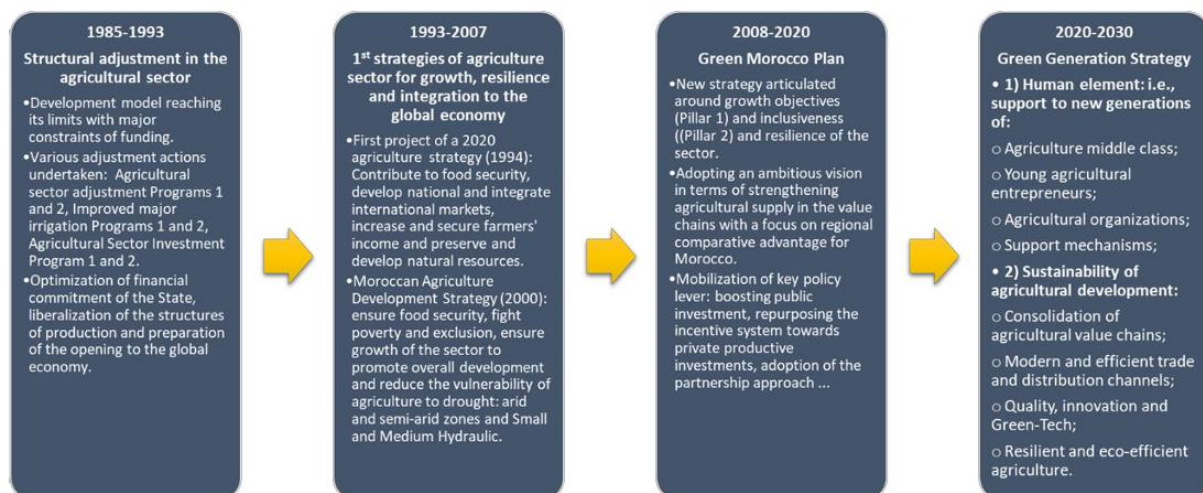
Furthermore, the strategy objectives include the improvement of working conditions and formalization of employment, by promoting social security and medical coverage for agricultural workers and the launch of programs aimed at reducing precariousness in the agricultural sector by strengthening formal contracts and improving working conditions.

The Generation Green also focuses on the development of value chains and agro-Industry to generate new employment

opportunities, through the modernization and expansion of agricultural value chains to create employment opportunities in processing, logistics, and distribution. It also aims to increase agricultural exports from \$2 to \$3 billion by 2030, which will generate jobs in higher value-added segments.

In short, Morocco marked turning points by implementing all of those strategies and programs (Figure 1) that place the economic and social objectives in the heart of their pillars. Each policy focused on a particular axe and had a special impact on one or many economic indicators (growth, jobs creation; etc.).

Figure 1: Evolution of Moroccan Agricultural Policies & Strategies since 1985



Source: The World Bank³

2. Agriculture policies & employment: A review of literature

The agricultural sector plays a crucial role as a driver of economic and social growth. Many studies showed that agriculture exhibits a more dynamic and responsive behavior compared to other sectors and structural adjustment programs.

This literature review examines the link between agricultural strategies and employment, drawing on international and national studies, with a particular emphasis on the impact of the Green Morocco Plan (PMV) in Morocco.

2.1. International perspectives:

Agricultural policies are at the heart of economic development strategies, particularly in countries where the agricultural sector remains a crucial source of employment and income. Numerous international studies, notably by the OECD and the World Bank, show that agricultural modernization, by introducing advanced technologies and enhancing the intensification of agricultural practices, often leads to a dual dynamic.

On the one hand, it increases the productivity and competitiveness of the sector (World Bank⁴, 2020); on the other hand, it can reduce

labor demand in certain segments, thus leading to a reallocation of jobs to other sectors of the economy (OECD⁵, 2019). These studies emphasize the need to accompany technical transformations with active training and retraining policies to mitigate negative employment impacts.

Agriculture is instrumental in alleviating poverty and addressing food insecurity. As noted by Castaneda et al.⁶ (2016), it provides the main income for 65% of working poor adults. From a theoretical perspective, agriculture has long been a topic of discussion among economists. Its significance has been widely acknowledged, from the views of Quesnay and the physiocrats to contemporary scholars. Theoretical analyses of agriculture's contribution to economic growth offer multiple perspectives on its importance.

During the 20th century, economists such as Rosenstein-Rodan (1943), Lewis (1954), Scitovsky (1954), Hirschman (1958), Johnson (1997), and Ranis & Fei (1961) examined agriculture as a vital resource for industrial and non-agricultural sector development. Their work emphasized agriculture's role in transferring surpluses to the industrial sector. This approach, rooted in dualistic models, argues that resources should shift from agriculture—considered less productive—to the more productive

⁵ OECD. (2019). Agricultural policy monitoring and evaluation 2019. OECD Publishing.

⁶ Castaneda, A., et al. (2016). *Who Are the Poor in the Developing World? World Bank Policy Research Working Paper.

³ The World Bank Report on Morocco Green Generation Program-for-Results, December 2020.

⁴ World Bank. (2020, November 20). Morocco Green Generation Program-for-Results.

industrial sector to modernize the economy and boost national output.

Conversely, scholars like Kuznets (1968), Kalecki (1971), Mellor (1976), Singer (1979), De Janvry (1984), Ranis (1984), and Vogel (1994) have emphasized the interdependence between agricultural and industrial development. They highlight agriculture's potential to stimulate industrialization, underscoring its broader economic significance.

Thus, the impact of agricultural strategy on employment is based on several economic theories. According to Schultz⁷ (1964), investments in agriculture can lead to increased productivity, which generates both direct jobs in agriculture and indirect effects in other economic sectors. Hayami and Ruttan⁸ (1985) add that agricultural modernization, through mechanization and the introduction of new technologies, can enhance productivity and create new employment opportunities.

Furthermore, several international studies have analyzed the impact of agricultural policies on employment, highlighting diverse dynamics depending on regional contexts and policy approaches.

In this regard, a study⁹ of the Organisation for Economic Co-operation and Development (OECD) examined the effects of agricultural policy reforms on rural economies and employment in member countries. The findings emphasized that traditional agricultural support policies are increasingly ineffective in achieving rural development objectives.

According to OECD results, the reform of agricultural policies can enhance the contribution of the agri-food sector to the sustainable development of rural economies, although positive effects are not immediate. The study also recommends a coherent approach aimed at diversifying activities, promoting high-quality regional products, and ensuring the provision of public goods.

In the same context, a joint report¹⁰ by the International Labour Organization (ILO) and the United Nations Conference on Trade and Development (UNCTAD) analyzes how agricultural trade influences job creation and loss in developing countries. With agriculture employing over one billion people in these countries—48% of the total workforce—the report highlights that agricultural trade can offer opportunities for development and employment. It also underscores the importance of social protection in reducing the vulnerability of agricultural workers and recommends targeted promotion of agricultural productivity to enhance competitiveness in global markets.

2.2. Morocco's case:

Several studies have assessed the impact of agricultural policies on employment in Morocco, stating in general, the positive link and the impact of these strategies on labor market. Regarding the PMV,

which is a flagship policy aimed at modernizing the agricultural sector in Morocco, several authors highlighted that this strategy improved the competitiveness of the sector but also led to differentiated effects on employment.

For example, Oulhaj, L. & al¹¹ (2013), through the combination of the three approaches, demonstrated that the existence of an agricultural development strategy is certainly better than no strategy. The study highlighted that the strategy adopted will certainly have a positive economic and social impact by increasing production and farmers' incomes.

However, the comparative analysis showed that the strategy deserves to be revisited in a broader framework. There is a need for a technological framework, especially Pillar II: Training of farmers, extension technology, the development of research and development by industry, and a re-industrialization of the country: it is the only option to absorb the surplus labor in the sector. The agro-industry should be an important part of this process as well as the educational and training schemes as levers for the modernization of agriculture and its development, in addition to supply chains and marketing where farmers play an important role to help them acquire part of the sector's surplus.

Thus, a study by Khellaf¹² et al. (2016) conducted a dynamic general equilibrium analysis to examine Morocco's ability to achieve the PMV's economic and social objectives, focusing on agricultural production, overall GDP, macroeconomic balances, household welfare, and food security. This study highlighted the challenges facing Moroccan agriculture and suggested adaptations to avoid the negative impacts of exogenous factors on the achievement of the PMV.

According to the authors, the PMV contributed to an increase in agricultural GDP, improved household welfare, and enhanced food security. However, challenges remain, including social and territorial imbalances, requiring adaptations to avoid the negative impacts of exogenous factors.

Furthermore, according to a report¹³ of Morocco's Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests (2018), which present the achievements of the PMV during the period 2008-2018, showed that the PMV enabled the creation of 342,000 additional jobs and increased the number of working days per worker from 110 to 140 days per year. Additionally, the number of agricultural workers registered with the CNSS rose from 120,000 in 2008 to 416,000 in 2018, reflecting improved working conditions and social protection.

On another hand, Akesbi (2010) criticizes the PMV by pointing out that investments in large-scale agricultural projects do not sufficiently benefit small-scale farmers, who represent a significant

⁷ Schultz, T. W. (1964). *Transforming Traditional Agriculture*. Yale University Press.

⁸ Hayami, Y., & Ruttan, V. W. (1985). *Agricultural development: An international perspective*. The Johns Hopkins University Press.

⁹ Organisation for Economic Co-operation and Development (OECD). *The reform of agricultural policy and rural economy in OECD countries*.

¹⁰ International Labour Organization & United Nations Conference on Trade and Development. (2018). *Shared harvests: Agriculture, trade and employment*. International Labour Office.

¹¹ Oulhaj L, De Arce, R., El Abbassi, I., El Bouhadi, A., El Khider, A., Medina Moral, E., Nihou, A., Khellaf, A., Lorca, A. V., Mahia, R., Mella-Marquez, J. M., & Tounsi, S. (2013). *Évaluation de la stratégie agricole du Maroc (Plan Maroc Vert) à l'aide d'un modèle d'équilibre général dynamique*. FEMISE.

¹² Belahsen, S., Khellaf, A., & Belahsen, M. (2016). *Evaluation de la stratégie agricole du Maroc (Plan Maroc Vert): Une analyse en équilibre général dynamique*. *Dossiers de Recherches en Economie et Gestion*, 5(1), 13-46.

¹³ Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests (2018). *"Review of the Green Morocco Plan 2008-2018"*.

portion of the rural population. This dynamic may limit the PMV's impact on the creation of sustainable and inclusive jobs.

For their part, Ouraich¹⁴, I., & Tyner, W. E. (2017) analyzed the impacts of climate change on Moroccan agriculture and the economy as a whole, assessing how the PMV has influenced the resilience of the agricultural sector in the face of these challenges. The authors showed that the PMV has contributed to modernizing Moroccan agriculture, particularly through irrigation and crop intensification and has strengthened resilience to climate change, but further efforts are needed to adapt agriculture to future challenges.

The study also emphasized an improvement in agricultural productivity in certain regions, but inequalities persist between large modernized farms and small traditional ones. According to their findings, the authors recommended to increase investments in efficient irrigation technologies and sustainable agricultural practices, to strengthen policies to support small farmers in order to reduce inequalities and improve overall resilience and to further integrate climate considerations into future agricultural strategies.

In light of the various studies, it appears that the impact of agricultural policies on employment is complex and multifaceted. While modernization and intensification of agricultural practices improve productivity, the impacts on direct jobs creation in the sector isn't clear or significant. In the specific case of Morocco, the PMV highlights these challenges, offering opportunities for modernization while posing challenges related to equity and the distribution of workforce among different actors in the sector.

3. Impact of PMV on employment in Morocco : A quantitative & qualitative analysis

Agriculture plays a central role in the Moroccan economy, both in terms of its contribution to GDP and job creation. In a country where the agricultural sector employs nearly 40% of the active population and serves as the primary source of income for a large portion of rural communities, agricultural policies are of paramount importance for economic and social development.

Moroccan Authorities considered agricultural policies as a strategic lever for job creation in the country. By supporting innovation, rural entrepreneurship, and the integration of youth into the sector, they not only contribute to economic growth but also to the reduction of social and regional disparities. Continuing reforms and adopting sustainable solutions will ensure inclusive and resilient agricultural development, driving a prosperous future for the country.

In fact, agriculture is not limited to just crop cultivation and livestock farming. It also serves as a driver for the agro-industry, which transforms agricultural products into higher-value goods. The development of the agro-industry enables job diversification by integrating roles related to processing, packaging, logistics, and marketing.

Moreover, the modernization of the agricultural sector through the adoption of new technologies and the improvement of rural

infrastructure enhances the competitiveness of Moroccan products in international markets. This dynamism attracts foreign investment and stimulates entrepreneurship, thereby creating new employment opportunities.

Thus, this special place of agriculture in the Moroccan economy justifies the interest of this study. The importance and relevance of evaluating the Moroccan agricultural strategy, known as the Plan Maroc Vert "PMV", stem from the significant role of the agricultural sector in Morocco's national economy.

3.1. Methodology:

We will proceed through a systematic documentary exam based on descriptive synthetic, comprehensive and in-depth analysis (official reports, available data, precedent evaluations...). We will compare the situation of employment before and after the implementation of PMV to identify the effects in terms of jobs creation and quality improvements.

In fact, a comprehensive assessment of the PMV faces a major limitation: the absence of systematic microeconomic data on Moroccan agricultural holdings. While macroeconomic indicators (such as the sector's contribution to GDP or agri-food exports) are regularly published, detailed information on production costs, farmers' incomes, or the differentiated impact of policies based on farm size remains scarce¹⁵.

We further stress that the key references supporting the comparison in our case are PMV evaluation reports (World Bank, 2018; Ministry of Agriculture, 2020); HCP agricultural surveys; World Bank and FAO data on agricultural structures in Morocco as well as academic studies on the differentiated impact of subsidies.

3.2. PMV's impact on employment : Comparative analysis

Moroccan agricultural sector possesses undeniable strengths and intrinsic potential, linked to the importance and diversity of its natural resources, the expertise and competitiveness of its workforce, the country's geographical location and proximity to the European market, continuously improving logistics, the comparative advantages of export sectors, and the growing potential for the development of the agri-food industry.

However, the agricultural sector has long suffered from an investment deficit. Before 2007, despite the significant contribution of the agricultural sector to the national GDP, its share in the public investment budget remained limited. This public investment deficit, coupled with a private investment shortfall—partly due to the limited participation of the banking system in financing the agricultural sector—had placed agriculture in a spiral of low productivity, low income, and poverty.

Moreover, the sector has long remained undiversified, with a strong predominance of cereal crops in agricultural value-added, exposing it to high growth volatility and negatively impacting the overall economic growth.

¹⁴ Ouraich, I., & Tyner, W. E. (2017). Climate change impacts on Moroccan agriculture and the whole economy: An analysis of the impacts of the Plan Maroc Vert in Morocco. *Journal of Agricultural Economics*, 68(3), 631-655.

¹⁵ This gap can be attributed to several factors: the fragmentation of small farms, the lack of individualized monitoring systems, and the predominance of informal agriculture, particularly in remote rural areas.

Compounding these issues is the weakness of the stakeholder base, with a poorly organized sector and inadequately structured agricultural professional organizations. This weakness has been exacerbated by outdated support structures that no longer meet the new demands and challenges of agriculture.

In addition to these structural deficiencies, the sector has, for many years, had to contend with a new context characterized by new challenging factors such as climate change, which threatens the sustainability of production systems, particularly unsustainable water use practices in the long term; Instability and volatility in global commodity markets, which have led to price increases, such as during the 2007-2008 food crises; Shifts in the global competitive landscape (specialization, marketing methods, the rise of modern distribution requiring deep transformations in value chains, etc.) and Growing consumer demands for product quality and traceability.

By 2008, Moroccan agriculture found itself at a crossroads, between decades of stagnation and a latent potential that needed to be mobilized and re-adapted to address the numerous challenges it faced.

It was in this context, and in line with the High Directives of Morocco's King, His Majesty Mohammed VI, that Moroccan authorities, through the Ministry of Agriculture, committed itself to formulating the Plan Maroc Vert strategy, launched in 2008. This strategy aimed to make agriculture a driver of economic and social development by transforming the agricultural sector into a modern, competitive, and inclusive one.

i. Main achievements of PMV: General Overview

Over the 2008-2018 period, the PMV has catalyzed substantial investments in Morocco's agriculture. According to World Bank¹⁶, at the macro-level, it has led to impressive impacts by leveraging significant investment and improving the performance of the agricultural sector.

Public investment financed through the PMV was mainly used to expand drip irrigation and improve water resources management and efficiency, diversification by shifting towards high value agriculture (olives, dates, fruit trees, and vegetables), and to promote the large-scale adoption of climate-smart agriculture practices. Cumulative investment under the PMV reached MAD10 billion over 2008-2018 (40% public, and the remainder leveraged from the private sector, including farmers).

Agricultural value added in real terms has almost doubled. A shift occurred towards higher value-added products, leading -- despite a challenging external environment -- to more than doubling of Morocco's agricultural exports and export growth rates of 9.5 and 8.2% for fresh and processed agri-food products, even though cereals continue to dominate production and drive the trade balance.

Also, the volatility of agricultural sector growth has significantly declined (due to a shift towards a more climate resilient production and the expansion of drip irrigation). The areas under drip irrigation have increased 3.7 times through the PMV (and cover

nearly 40 percent of total irrigated area), greatly enhancing resilience to droughts.

On the economic front, agricultural GDP and agricultural exports have doubled, generating positive effects on farmers' incomes, investment, and the trade balance, according to Moroccan Ministry of Agriculture¹⁷. The contribution of agriculture to GDP growth points increased from 7% during the decade 1998-2008 to 17% during the decade 2008-2018, according to the Ministry.

In the same context, the program led to a better ensuring of sustainable food security, making Morocco one of the leading countries in the MENA region in terms of basic food needs coverage (50 to 100% depending on the product).

Environmentally, agriculture plays a key role in the protection and sustainable use of water resources and agricultural land, as well as in preserving biodiversity.

Furthermore, regarding employment axe, the PMV has created 50 million workdays, equivalent to 250,000 to 300,000 full-time equivalent jobs in agriculture over 2008-2018.

Indeed, agricultural employment has seen a significant quantitative and qualitative improvement, particularly through increased labor productivity and the number of workdays per agricultural job, contributing to higher incomes and better working conditions.

The PMV's inclusive dynamic, benefiting 2.7 million small and medium-sized farmers, has developed through the promotion of local products as a source of job creation and improved living conditions for rural populations, especially rural women and youth. This has led to the creation of nearly 10,000 agricultural cooperatives.

In the following, we will proceed to a quantitative and qualitative analysis of PMV's impact on employment in particular. To do so, we will rely on data that we gathered from HCP reports, PMV evaluation reports and official statistics of all sources as well as world bank data on Morocco.

ii. PMV's quantitative impact on employment

According to local departments charged of strategies followings in Morocco (Bilan & Situation Reports...), the PMV has led, since its inception, to the creation of thousands of jobs and has revitalized the agricultural sector.

However, several challenges remain, including the need to better integrate small-scale farmers into modern value chains; improving the quality of agricultural employment, which is often characterized by informality and job insecurity and adapting to climate change, which affects yields and employment opportunities.

In this context, and based on HCP yearly notes on labor market, we gathered data illustrating the evolution of employment rate in the Moroccan agriculture sector (Table 1 & 2). The Figure highlights the evolution of employment in Morocco's agriculture sector, both before and after the launch of the Plan Maroc Vert (PMV) in 2008.

¹⁶ The World Bank Report on agriculture sector review (2020) & Ministry of Finance and HCP data (2019).

¹⁷ Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests (2018). "Review of the Green Morocco Plan 2008-2018".

Table 1: Agriculture employment evolution between 2005 & 2008 (Ex PMV period)

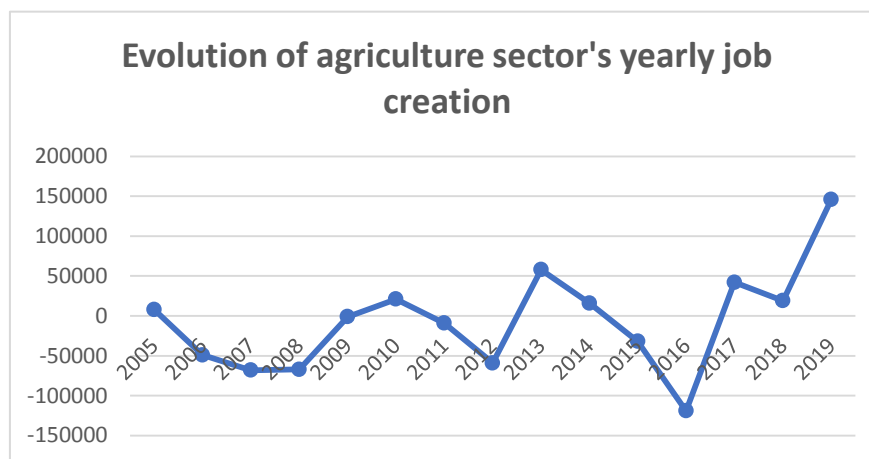
	2005	2006	2007	2008
Yearly creation	+8000	-49 000	-68 000	-67 000
Agriculture Employment share of total sectoral creation 'AE-TC'	8.79%	-16.33%	-53.12%	-50.37

Source: Data gathered & calculated based on HCP notes on labor market

Table 2: Agriculture employment evolution between 2008 & 2019 (Post PMV)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Yearly creation	-1100	+21000	-9000	-59000	+58000	+16000	-32000	-119000	+42000	+19000	+146000
'AE-TC'	-1.15%	17.50%	- 8,57%	-5900%	- 50.87%	76.19%	- 96,96%	-321,62%	48.83%	16.96%	-88.48%

Source: Data gathered & calculated based on HCP notes on labor market

Figure 2: Evolution of agriculture sector's yearly job creation between 2005 & 2019

Source: Created by author based on HCP data

Pre-PMV Period (2005–2008):

Indeed, in 2005, there was a positive creation of 8,000 jobs in the agriculture sector. This could be attributed to moderate growth or recovery from previous years. However, in 2006, the sector experienced a significant loss of 49,000 jobs. In accordance to the Moroccan economic context by that time, this sharp decline could have been linked to several factors, including drought, economic stagnation, and inefficiencies that faced the agricultural sector.

In addition, the loss continued in 2007. It has increased to 68,000 jobs showing a continuation of negative employment trends, possibly due to unfavorable agricultural conditions or continued sectoral challenges.

Then, the agricultural sector lost 67,000 jobs, and this is the year when the PMV was launched, but the initial results were not visible yet. We can assume that the agriculture sector was still struggling to adapt to new policies or experiencing external shocks, such as global economic conditions or climate-related issues.

In addition, the analysis of agriculture employment share of total sectoral creation, calculated based on HCP data, showed that in general, while agriculture was contributing positively, its share in overall sectoral job creation was still relatively small.

For example, in 2005 Moroccan agricultural sector accounted for 8.79% of the total employment creation. Also, this share percentage turned negative, with -16.33% in 2006, -53.12% in 2007, and -50.37% in 2008, showing that the agricultural sector was a major net destroyer of jobs during this period. In fact, we assume that this decline could reflect structural challenges in the sector, a lack of modernization, and poor agricultural performance.

Post-PMV Period (2008–2019):

Based on data covering employment trends from 2009 to 2019, which is the period of PMV implementation and its aftermath. We stress the following observations:

In 2009, there was a small loss of 1,100 jobs in the agriculture sector, which might reflect the initial effects of the PMV, which would logically take time to materialize. Then, in 2010, the sector

added 21,000 jobs, which represents a positive shift as the PMV began to show initial results in boosting agricultural productivity and possibly job creation, especially with the introduction of modern agricultural techniques and the promotion of irrigation projects.

However, the sector lost once again 9,000 jobs in 2011. Despite the PMV's goals to increase agricultural employment, Moroccan agriculture sector was still facing many challenges that stopped the policy from giving effect. We cite here some factors as example, namely droughts, bad investment infrastructure, or poor crop yields, leading to fewer job opportunities.

The year 2011 was unfortunately followed by a harder year in terms of negative trend. Out of government expectations and goals, the year 2012 was marked by a sharp loss of 59,000 jobs occurred. This could be a reflection of unfavorable weather conditions or a delayed response to the PMV's policies. We also note that cereal crop production in Morocco in 2012 declined by 43% compared to the 2011, which led to a weak performance of Moroccan agriculture sector in general.

Furthermore, the year 2013 came with an additional 58,000 jobs created. This suggests that the PMV might have had a positive impact on job creation, with increases in productivity or more investments in agriculture that resulted in labor demand. Then, an additional 16,000 jobs were created in 2014 also, but the sector's employment share (76.19%) indicates that while agriculture's share in overall job creation was large, the sector still faced significant volatility and fluctuations.

This positive trend didn't remain for too long, as the sector experiences a loss of lost 32,000 jobs in 2015, and the employment share was negative (-96.96%), signaling a difficult year, due to adverse weather conditions, especially that Morocco is a country

relying in majority on Weather conditions, and economic slowdown.

This was followed by another significant loss of 119,000 jobs in 2016, considered as the largest loss in this period. This suggests that the agricultural sector faced serious challenges despite the PMV's objectives. This could be linked to external shocks, such as global market conditions, or even a failure of the PMV's policies to reach all parts of the sector.

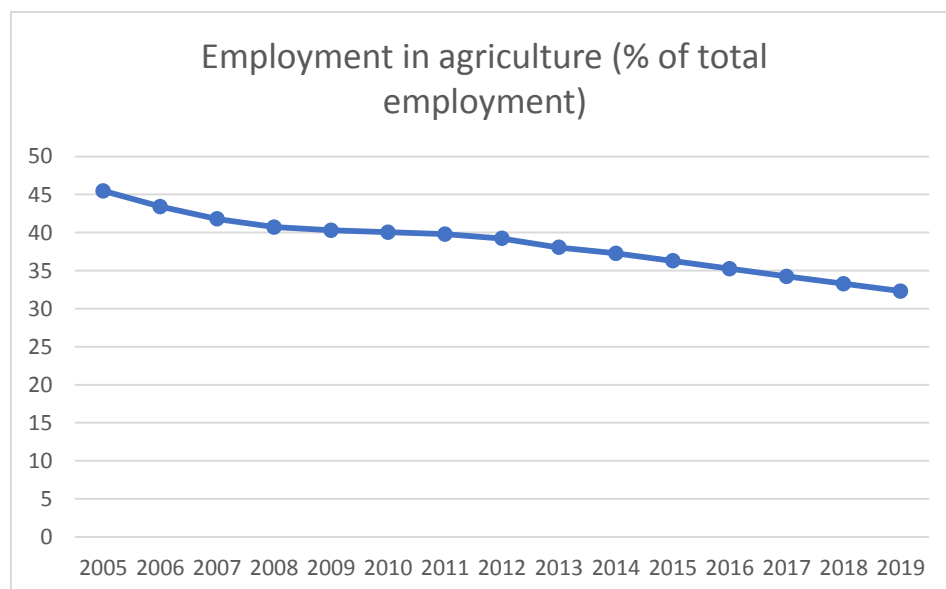
In 2017, the sector regained 42,000 jobs, with a relatively positive 48.83% share in total, showing that the PMV was having a positive effect on employment in the agriculture sector by this time, though it still could not fully reverse the negative trends seen earlier. Additionally, another 19,000 jobs were added in 2018, showing continued positive growth, though the agriculture's contribution to overall employment creation was still modest, with a share of 16.96% only.

Lastly, the year 2019 knew a significant rebound in employment creation with 146,000 jobs, and an employment share of -88.48%, showing a remarkable recovery by 2019. However, despite the job creation, the overall share of agriculture in total employment creation was still negative, suggesting that other sectors might have been absorbing most of the job creation, which is another problem challenging the public authorities in Morocco.

This situation could actually be a spur for concerned departments to intervene and handle the employment situation with better means, notably through a better interaction between sector strategies and by taking in consideration the many external factors that must be included while implementing a policy.

On another hand, and in order to emphasize these conclusions and to illustrate the jobs trending in agriculture sector, we present the employment rate evolution (Figure 3) during the Pre and Post PMV periods.

Figure 3: Evolution of Employment rate



Source: World Bank Data

In general, the data show that before PMV (2005-2007), the employment rate was already in decline, reflecting broader economic challenges and possibly the beginning of structural shifts, while after PMV launch (2008-2019), the employment rate continued to decline, possibly due to delays in the impacts of the policy the effects of global economic crises, and structural problems in the economy. However, some years witnessed a rise in jobs creation, thus in employment rate which affirm that PMV for sure had a positive impact on agricultural jobs creation but didn't achieve the initial objective and didn't also address the employment issue in general.

Therefore, the PMV likely contributed to agricultural development, but it may not have been enough to offset broader economic and structural challenges in the country.

Analysis and Conclusions:

In short, according to our analysis, we can stress that the PMV's impact on employment in the agricultural sector was gradual. The policy has a positive impact reflected by some positive job creation in the later years, particularly the 2017-2019 period. However, the sector remained volatile and highly dependent on external factors, since its contribution to total employment was more of downs than ups.

In details, the initial post-PMV years (2009-2012) were challenging, with many years showing negative employment creation. This suggests that the full effects of the PMV may not have been realized immediately and that agricultural reforms take time to show their benefits on employment. By 2019, the agricultural sector did see some improvement in job creation, but the sector's employment share remained small, and broader economic shifts likely played a significant role in the overall employment trends

Here follows summarized conclusions:

1. Before the PMV (2005-2008):

- The agricultural sector showed strong negative job creation in the years leading up to the launch of the PMV, with a consistent trend of job losses. The sector's ability to create jobs was weak, and it became a net job destroyer, especially in 2007 and 2008.
- Agriculture's share of total job creation was also negative in these years, suggesting that the sector was not contributing positively to Morocco's overall employment growth.

2. After the PMV Launch (2008-2019):

- Early years of the PMV (2009–2012) saw mixed results, with some job creation in 2010 and 2013 but also significant job losses in other years. The sector's response to the PMV policies was not immediate or entirely positive.
- The most significant job losses occurred in 2016, with a dramatic loss of 119,000 jobs, highlighting the vulnerability of the agriculture sector to external factors like climate conditions (e.g., droughts) and global economic shifts.
- From 2017 onward, there was a gradual recovery in employment, with 2019 showing a significant rebound.

However, the agriculture sector's contribution to total job creation was still low, and agriculture continued to experience significant fluctuations in employment year-to-year.

Results Comparison with Literature

According to Belahsen, S., Khellaf, A., & Belahsen, M. (2016)¹⁸, the ex-ante evaluation of the PMV using a computable general equilibrium (CGE) model, showed that the implementation of the PMV's investment program generates positive effects on agricultural value added, which could exceed 115 billion DH by 2020—a figure even higher than the 100 billion DH target set by the PMV.

Furthermore, a simulation of a 10% increase in productivity (resulting from improved training, greater use of skilled labor, or the adoption of new technologies) in the agricultural sector would lead to an average annual increase of 3.5% in agricultural value added.

In terms of employment effects, authors indicate that an improvement would come less from employment income (wages) and more from other sources of income (capital and transfers) due to the predominance of low-skilled jobs and family assistance, which would continue to characterize the agricultural sector.

Also, the agricultural sector not only has direct impacts on the economy, but it also creates momentum through its indirect effects, which spread through the improvement of production in other activities that supply intermediate goods, production inputs for other sectors, as well as final products.

Additionally, authors stressed that agricultural value added is expected to increase by more than 3.6 billion DH annually on average between 2008 and 2020. Overall, the investments planned under the PMV would increase agricultural sector production by more than 5 billion DH annually on average between 2008 and 2020. However, agricultural export growth would not exceed 275 million DH annually on average over the same period.

In the same context, we collected; in the following table, employment multipliers¹⁹ in the Moroccan agriculture branches as well as elasticities calculated by authors in different studies.

¹⁸ Belahsen, S., Khellaf, A., & Belahsen, M. (2016). Évaluation de la stratégie agricole du Maroc (Plan Maroc Vert) : Une analyse en équilibre général dynamique. *Revue d'économie et de gestion*.

¹⁹ The employment multiplier reflects how many jobs are created in the economy for each job directly created by a particular sector or project.

Table 3: Employment multiplier & elasticity during 2007-2018 period

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Employment multiplier	1,19	1,19	1,17	1,24	1,24	1,20	----	----	----	----	----	1,18
Elasticity	-----	-0,07	0,00	0,12	0,04	0,50	-0,91	-0,66	0,76	2,55	5,73	0,30

Source: Collected by author from two distinct studies (literature synthesis)²⁰

Between 2007 and 2012, the employment multiplier of Moroccan agriculture branches remained relatively stable and positive (around 1.19 to 1.24). This suggests that employment in the sector is driving job creation beyond the direct employment.

For the year 2018, the multiplier was at 1.18, suggesting some level of positive job creation but with a slightly lower effect than in previous years.

We also underscore that the best years for job creation in agriculture sector in Morocco are the years with higher multipliers, namely 2007, 2008, 2010, and 2011.

Regarding the elasticity²¹ of employment, the period from 2009 to 2012 shows a relatively small but positive elasticity, which means that the employment is somewhat responsive to economic growth in those years.

Then during the 2013-2017 period, the elasticity becomes negative for a few years (2013, 2014), which could indicate an economic contraction or negative shocks affecting employment growth. The lowest elasticity values, particularly in 2013 and 2014, suggest that job creation was weaker or even negative in relation to economic activity during those years.

Thus, the drastic increase in elasticity to 5.73 in 2018 indicates a significant improvement in labor market responsiveness to economic activity during that year. This also means that year showed the greatest responsiveness of employment to economic growth.

In fact, according to El Alaoui, A., & Boudhar, A. (2014) the Moroccan economy is characterized by its heavy reliance on the

agricultural sector. A significant portion of the population is employed in this sector (over 41% on average). Similarly, the value added by the agricultural sector represents, on average, 14.3% of GDP.

According to Pouya, P., Khayati, A., & Chatouane, K. (2021), employment creation is concentrated in the sectors where the productivity gain is weak. In the end of 2018, the Moroccan economy generated approximately 7.1 million jobs outside agriculture. More than the one quarter of this number (2.8 million) was created in two sectors only: the building industry and trade.

According to CESE, 2019²², the two principal reasons behind weak investment efficiency in Morocco are namely the concentration of investments, by eviction effect, in infrastructure, in the non-exchangeable goods and services sectors (protected sectors against competition), and in the real estate as expense of the productive sectors, and for investments oriented toward the productive sectors, the weakness is due to a lack of competitiveness of the labor factor in relation to Morocco's competitors (resulting from a relatively higher cost of living) and the weakness of human capital.

On another hand, the qualitative aspect is as important as the quantitative creation. Achieving the PMV's objectives would require a significant effort to catch up in training and education, especially programs including women and young people. A growing awareness of the importance of jobs quality improvement cannot be separated from the country's overall development process.

According to the literature, rethinking agricultural policy; through better adequation of formation-labor market needs, education level amelioration ... within a national economic strategy would allow for better integration of the agricultural sector, enhancing non-agricultural sectors and offering farmers new income sources.

In this context, we present, in the following section, a comprehensive analysis of employment quality within the framework of PMV. To do so, we rely on the same synthetic documentary methodology.

²⁰ El Alaoui, A., & Boudhar, A. (2014). Classification des secteurs créateurs d'emplois au Maroc : Analyse du multiplicateur d'emploi par le modèle input-output. In *Exclusion économique des jeunes : Quels leviers pour relever les défis de l'emploi ?* + Pouya, P., Khayati, A., & Chatouane, K. (2021). Growth sectors in morocco and investment potential: a quantitative analysis. *Int J Econ Financ*, 13(10), 1-54.

²¹ The elasticity of employment measures how responsive employment is to changes in output or economic activity. In our case, it reflects the responsiveness of employment to the economic conditions of the period. A positive elasticity suggests that employment increases in response to economic growth, which is a desirable outcome in sectors where labor demand grows with increased economic activity.

²² Conseil Economique et Social et Environnemental. (2019). *Le nouveau modèle de développement du Maroc*.

iii. PMV's qualitative impact on employment

Table 4: Agricultural employment rate by gender

Year	Employment in agriculture, male (% of male)	Year	Employment in agriculture, female (% of female)
2005	40.01839567	2005	61.63
2006	37.13203263	2006	61.57
2007	35.31966836	2007	60.27
2008	34.12256612	2008	59.44
2009	33.49529396	2009	59.83
2010	32.89932213	2010	60.68
2011	32.51579286	2011	61.37
2012	32.26031396	2012	60.21
2013	31.19705498	2013	58.09
2014	30.38110482	2014	57.25
2015	29.71659794	2015	55.63
2016	28.94338152	2016	54.57
2017	28.22382072	2017	53.11
2018	27.51830082	2018	51.75
2019	26.77470523	2019	50.5

Source: World Bank Data

According to world bank data, in 2005, 40% of men were employed in the agricultural sector. This rate experienced a continuous decline, reaching 26.77% in 2019. During the PMV period (2008–2019), the rate dropped from 34.12% to 26.77%, a decrease of over 7 percentage points.

Regarding the general Trend in Female Employment, data show that in 2005, 61.63% of active women worked in agriculture. Here too, the trend was clearly downward, with a gradual decline to 50.5% in 2019. During the PMV period (2008–2019), the rate fell from 59.44% to 50.5%, a decrease of nearly 9 percentage points.

Here follows a summary of employment evolution by gender in the Moroccan agriculture sector:

Year	% Men in Agriculture	% Women in Agriculture	Gap
2005	40%	61.6%	+21.6
2008	34.1%	59.4%	+25.3
2012	32.3%	60.2%	+27.9
2016	28.9%	54.5%	+25.6
2019	26.8%	50.5%	+23.7

Source: Calculated by authors, based on world data bank

If we analyze women's agricultural employment rate, data show that this one remains consistently higher than men's, but the gap stays stable or even slightly widens, averaging around 25 percentage points. This reflects women's greater dependence on agricultural employment, which may indicate a lack of opportunities for transitioning to other sectors.

This trend highlights the need for gender-sensitive approaches in agricultural and rural development policies, ensuring targeted training for women, equitable access to land, credit, and social security and support policies for professional transition.

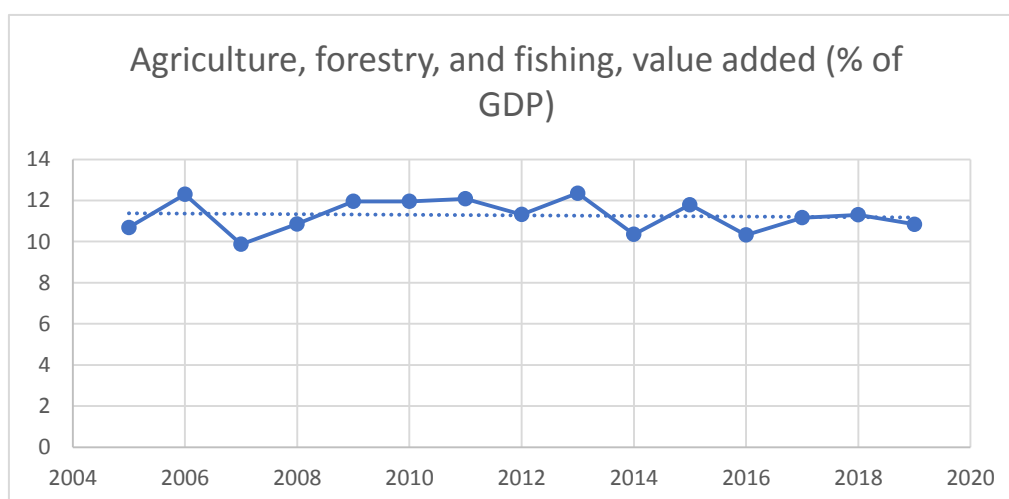
It is also important to note that the fact that over half of active women remained in agriculture in 2019 highlights limited diversification in their professional opportunities. This underscores

a structural transition inequality between genders, where men have shifted more toward industry or services.

Indeed, the PMV aimed to modernize agriculture by developing high-value-added sectors (fruits, vegetables, exports) and mechanizing farms. Therefore, despite their central role in agricultural activities, women were less integrated into modern value chains (agro-industry, logistics, exports) created by the PMV.

In the same context, the qualitative impact of the PMV can also be measured by its implications on structural transformation, considered as an important pillar. In fact, the analysis of the evolution of the agriculture value-added in Morocco does not show a clear structural transformation (Figure 4). The Moroccan agricultural sector remains central to Morocco's economy, and the transition toward higher value-added sectors appears limited.

Figure 4: Agriculture, forestry, and fishing, value added (annual % growth)
(2005-2019)



Source: Created based on World Bank Data

The share of agriculture, forestry, and fishing in GDP fluctuated between 10.5% and 12.6% in the period before the PMV's implementation (2004-2007). Some volatility is observed, with a decline in 2006 followed by an increase in 2007.

In the 2008-2019 period, the agricultural sector's share of GDP remained relatively stable, generally between 11% and 12.5%, with a few exceptions (notably a drop in 2016). Thus, the overall trend appears to show a slight stagnation or a modest decline toward the end of the period (around 11% in 2018 and 2019).

In short, data show that despite the PMV's ambitious modernization goals, the agricultural sector's share of GDP remained stable, which may indicate a limited structural transformation or productivity gains in the agricultural sector that offset the potential decline in labor force.

Also, the stability of the sector's share in GDP could reflect an improvement in the resilience of the agricultural sector as well as a progress in value chains, irrigation, mechanization, and high-value-added crops (e.g., fruits, olives).

However, the absence of a downward trend suggests that agriculture remains a significant part of the economy indicating an incomplete structural change.

Furthermore, according to the figure above, we can assume that observed fluctuations, eventually drops in 2012 and 2016, highlight a persistent vulnerability to drought and climate conditions.

In addition, while the PMV may have improved rural employment or incomes, the value added as a percentage of GDP did not increase significantly, suggesting a job creation in low-productivity subsectors and uneven technological transformation across different agricultural sectors.

These findings are affirmed by many studies and analysis examining the quality of employment in Morocco in the PMV era.

In this context, we cite the World Bank²³ (2020), showing that, while the PMV boosted agricultural productivity, most rural jobs remain informal, seasonal, and poorly paid, with limited access to social protection.

Similarly, the Haut-Commissariat au Plan (HCP²⁴, 2019) reports that 75% of agricultural workers lack formal contracts or social security coverage, highlighting persistent informality. These findings suggest that despite productivity gains, the PMV has not substantially improved job stability or working conditions for the majority of Morocco's agricultural workforce.

For their part, the FAO²⁵ (2018) and European Commission²⁶ (2017) emphasize that employment quality in Moroccan agriculture remains hindered by structural challenges. Seasonal labor dominates the sector, particularly for women and youth, with wages remaining low and employment opportunities highly vulnerable to climate shocks, such as droughts.

Furthermore, the Moroccan Institute for Policy Analysis (MIPA²⁷, 2021) adds that smallholder farmers and landless workers—who constitute a significant portion of the agricultural labor force—have seen little improvement in income security, despite PMV-led investments in high-value crops and mechanization. This indicates that growth in certain agricultural subsectors has not translated into better livelihoods for the most vulnerable workers.

²³ World Bank. (2020). Jobs and economic transformation in Morocco. World Bank Group.

²⁴ Haut-Commissariat au Plan (HCP). (2019). Enquête nationale sur l'emploi – Rapport annuel.

²⁵ FAO. (2018). Rural employment and agricultural modernization in North Africa: A comparative study of Morocco and Tunisia. Food and Agriculture Organization of the United Nations.

²⁶ European Commission. (2017). Support to the Green Morocco Plan – Final evaluation report.

²⁷ Moroccan Institute for Policy Analysis (MIPA). (2021). Rural labor market under the Green Morocco Plan.

In short, the literature suggests that Morocco's agricultural sector continues to face deep-seated issues related to informality, low wages, and climate vulnerability, despite the PMV's achievements in productivity and value chain development. Our findings, aligned to literature suggestions, underscore the need for integrated rural development strategies that go beyond agricultural productivity to address the root causes of low-quality employment in Morocco's countryside. Moroccan authorities will need to adopt a more integrated and inclusive approach in order to enhance the impact of the PMV and its subsequent initiatives like the "Generation Green" strategy on both the quantity and quality of employment.

Conclusion

The PMV has for objective to comprehensively reshape the Moroccan agricultural sector, to drive sustainable and inclusive socio-economic development through the improvement of GDP growth, amelioration of exports and poverty reduction. It also aimed to establish agriculture as a driver of economic growth and job creation, particularly in rural areas.

On the economic and social front, and based on our in-depth analysis, we conclude that the PMV's impact on employment in the agricultural sector was gradual. The policy has had a positive impact reflected by job creation in the later years of its implementation, particularly the 2017-2019 period. However, the sector remained volatile and highly dependent on external factors, since its contribution to total employment was more of downs than ups.

In fact, before the PMV (2005-2008), the agricultural sector showed strong negative job creation with a consistent trend of job losses. The sector's ability to create jobs was weak, and it became a net job destroyer, especially in 2007 and 2008.

Then, the early years of the PMV (2009-2012) saw mixed results, with some job creation in 2010 and 2013 but also significant job losses in other years. The sector's response to the PMV policies was not immediate or entirely positive.

Our study showed that the most significant job losses occurred in 2016, with a dramatic loss of 119,000 jobs, highlighting the vulnerability of the agriculture sector to external factors like climate conditions and global economic shifts.

From 2017 onward, there was a gradual recovery in employment, with 2019 showing a significant rebound. However, the agriculture sector's contribution to total job creation was still low, and agriculture continued to experience significant fluctuations in employment year-to-year.

Therefore, it is crucial to stimulate investment in agricultural sectors with high potential for sustainable job creation, particularly agro-industry, organic farming, and precision agriculture, which require more skilled labor. In this context, Moroccan government can facilitate this through tax incentives, simplified access to financing for rural SMEs, and targeted technical support.

Thus, regarding the quality front, we underscore that, despite the stated ambitions of the PMV, the quality of agricultural employment in Morocco remained generally low. Most jobs created are still informal, seasonal, poorly paid, and lack social protection.

Our analysis, based on the comprehensive literature synthesis, emphasized that the PMV hasn't really generated a lasting trend toward formalization or an upskilling of agricultural jobs. This situation stems from the predominance of the persistent reliance on weather conditions as well as the low education levels of agricultural workers which undermines job stability in the sector.

Moreover, Morocco's economy has not undergone significant structural transformation. Agriculture's share of GDP remained relatively stable between 2008 and 2019, indicating the sector's continued importance in the economy. This suggests that the expected shift of labor toward higher-productivity sectors has not occurred on a large scale.

This stagnation is partly due to limited absorption capacity in these sectors, poor intersectoral policy coordination, and a vocational training system that remains misaligned with labor market needs.

Consequently, to improve job quality and drive meaningful structural transformation, Moroccan departments could focus on strengthening agricultural vocational training and promoting job formalization in rural areas through tax incentives and better access to social protection. Encouraging rural economic diversification via agro-industry, rural tourism, and handicrafts is also a good perspective to create more stable and skilled jobs. Additionally, enhancing territorial governance through effective decentralization and local stakeholder engagement, ensuring agricultural policies could bring to greater socio-economic inclusion.

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