Unveiling agricultural aversion: Understanding the reluctance towards farming in modern Greek society

Emmanouil Tziolas[a], Athanasios Falaras[b], Georgios Fytianos[b] & Dimitrios Psathas[b]

ABSTRACT: The European agricultural sector grapples with rural decline, policy complexities, and socio-economic disparities. This study focuses on the challenges facing Greek agriculture, such as lack of state support and societal complexities. It aims to understand why interest in farming is declining in Greece by integrating insights from European legislation, socio-economic measures, and immigration dynamics. Through a survey of 1,009 respondents, factors such as unstable weather, challenging work conditions, and limited career prospects were identified as deterrents. The study highlights disparities among different groups and emphasizes the need for nuanced policy interventions to revitalize the sector and address worker grievances.

Desvelando la aversión hacia la agricultura: Un análisis de la reticencia a la actividad agrícola en la sociedad griega contemporánea

RESUMEN: El sector agrícola europeo enfrenta desafíos como el declive rural y las disparidades socioeconómicas. Este estudio analiza la falta de apoyo estatal y las complejidades sociales que afectan a la agricultura griega. Mediante una encuesta a 1.009 personas, se identificaron como factores disuasorios la inestabilidad climática, las duras condiciones laborales y las escasas perspectivas profesionales. El análisis integra legislación europea, medidas socioeconómicas y dinámica migratoria. Los resultados destacan disparidades entre grupos sociales y subrayan la necesidad de políticas específicas para revitalizar el sector y responder a las preocupaciones de los trabajadores.

KEYWORDS / PALABRAS CLAVE: agricultural policy, Greek farmers, new farmers, quantitative survey, rural economy / política agrícola, agricultores griegos, nuevos agricultores, encuesta cuantitativa, economía rural.

JEL classification / Clasificación JEL: Q10, Q18, R10.

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1. Introduction

The European agricultural sector stands at a crossroads, grappling with a complex interplay of socio-economic factors. It remains one of the most significant employers in the EU, with approximately 8.7 million individuals engaged in agriculture, though the sector is confronted with a scarcity of young farm managers (Eurostat, 2020). The transformation of human society triggers an inevitable rural decline, driven by interactions with the external environment and collaboration challenges among local groups (Li *et al*., 2019).

Furthermore, the European policy framework hinders structural changes, mainly focusing on subsidiary measures, which have heightened the barriers for new farmers entering agriculture, due to increased costs associated with production factors (Ciaian *et al*., 2010). While the transition of the Common Agricultural Policy (CAP) 2023-27 from coupled to decoupled income support was regarded as a judicious decision, the objectives primarily revolve around income (Barral & Detang-Dessendre, 2023) and may not represent the most effective policy for generating sustainable employment opportunities (Garrone *et al*., 2019). Certainly, the recent farmers' protests spanning in the winter of 2023 across Europe manifested a robust resistance to the European Union's (EU) policy framework. This has amplified apprehensions and reservations among newcomers, attributable to elevated production costs, uneven competition arising from imports and undervalued food products cultivated in the EU (Nature Food Editorial, 2024).

The integration of the EU's directives aimed to standardize practices and foster cooperation, though it has inadvertently posed challenges over the years, leading to skepticism among stakeholders regarding the potential "renationalization" of measures (Becker *et al*., 2022). These intricacies of compliance, coupled with complex national variations (Runge *et al*., 2022), have created a dynamic environment that demands adaptability from the agricultural community (Baldock & Bradley, 2023). However, adaptability is notably influenced by various factors, including but not limited to climate change mitigation, financial considerations, and governance, impacting multiple societal groups (Grigorieva *et al*., 2023; Stringer *et al*., 2020).

Amidst the broader economic uncertainty due to impacts related to the Ukraine war (Chepeliev *et al*., 2023) and to the Covid-19 pandemic (Meuwissen *et al*., 2021), farmers in the EU navigate a landscape shaped by economic priorities and not by sustainable social and environmental development goals, which have received little funding by the EU (Scown *et al*., 2020). Furthermore, the observable income disparity between agricultural and non-agricultural employment serves as a clear factor contributing to people's indifference towards agriculture in general (Gómez Valenzuela & Holl, 2024; Han & Chung, 2021). In this context, Woodhill *et al*. (2022) introduced additional challenges, including the need for policy reforms to address current deficiencies in the food market and the enhancement of social protection systems, to mitigate the potential impact of humanitarian crises.

The critical social dimension influences the agricultural European landscape, especially in Southern Europe, where the inclusion of migrant workers in the agri-food sector expands the workforce, but concurrently introduces social and legal challenges related to exploitation (Palumbo *et al*., 2022). While there is scant evidence indicating that immigration lowers the wages of native workers, it still exerts adverse effects on employment (Edo, 2015; Peri, 2014), contributing to peoples' negative opinion even on quality of life in rural areas (Chatziioannidis & Partalidou, 2024). Furthermore, it has been argued that rural areas may face challenges in handling the abrupt influx of migrants (Moore, 2021), particularly in regions with limited experience in migration and undergoing demographic shifts marked by aging and declining populations (Kalantaryan *et al*., 2021). The seasonal and temporal characteristics of agricultural labor pose additional challenges for assessing economic and social integration, prompting a need to reassess the definition and implications of effectively incorporating migrants in such instances (McAreavey & Argent, 2018).

In this regard, the noticeable decline in local interest in agricultural occupations is enhanced by the demographic composition of the agricultural workforce (Beckers *et al.*, 2020; Sutherland, 2023), policy implications (Eistrup *et al.*, 2019; Schwarz *et al.*, 2021), technological advancements (Dhillon & Moncur, 2023; Mohr *et al.*, 2023), new farmers' insufficient knowledge (Calo, 2018; Sutherland *et al.*, 2017), financial instability (Pawlewicz & Pawlewicz, 2023), land access (Castillo *et al.*, 2013) and land availability (Valujeva *et al.*, 2022; Wójcik-Leń, 2022). In Southern Europe, the prevalence of small-scale holdings amplifies the impact of all the aforementioned barriers, intensifying even more the challenges faced by agricultural stakeholders in the whole region (Zagata & Sutherland, 2015). In the Greek territory, small-scale agricultural operations contend with a challenging business landscape, which constrains opportunities and heightens barriers to innovation in the agricultural sector (Falaras & Moschidis, 2022). More specifically, young farmers encounter significant challenges in expanding their farms, compounded by economic uncertainty, which impedes their ability to make long-term investment decisions and hampers the realization of their agricultural ambitions.

As a matter of fact, nearly half of farmers' loan applications were rejected in 2018 and 2019 due to insufficient collateral, particularly affecting younger farmers with limited credit history, while the financing gap is estimated at 4.5 billion to 14.3 billion Euros (fi-compass, 2020). On the contrary, as stated by Gkatsikos *et al*. (2022) the EU's generation renewal policies positively impact employment and income generation, strengthening indirect job creation in rural areas and supporting rural welfare in large areas of Greece. However, institutional corruption develops clientelist social networks and poses a multifaceted social challenge, manipulating subsidiary measures according to political agendas and preventing newcomers to the Greek agricultural scheme (Micha *et al*., 2015; Monastiriotis & Antoniades, 2009).

Ipso facto the modern Greek farmer is facing an additional array of difficulties related to a manipulated "absence" of state support, which further fuels reluctance towards

engaging in farming activities. The inherent social complexities may arise from the deep-rooted connections among social groups and family affairs in rural areas, often intertwined with the influence of local farm heads who foster a real or symbolic sacred family/community relationship in Greece (Koutsou *et al*., 2011; Trigkas *et al*., 2021). This combination of on and "off" farm activities by specific social groups contributes even more to people's reluctance towards agriculture distorting the pluriactive stereotype of the "good-farmer" entrepreneur (Smith & Mcelwee, 2013). Hence, while previous studies have highlighted the beneficial effects of pluriactivity in Greece (Efstratoglou-Todoulou, 1990; Giourga & Loumou, 2006; Tsiobani *et al*., 2013), negative repercussions are also associated with illicit off-farm activities (Smith & Mcelwee, 2013). Economic crimes are typically perpetrated by individuals deeply integrated into society and accustomed to life within their community (Engdahl, 2007), a pattern not uncommon in Greek rural communities.

Apart from the abovementioned, the Greek agriculture remains predominantly characterized by fragmented agricultural knowledge, an aging farmer population and low level of cooperation (Kasimis *et al.*, 2010; Klonaris, 2021; Koutsouris & Zarokosta, 2022; Tsiaousi & Partalidou, 2023). Focusing on the demographic factor contributing to the low appeal of farming to new entrants, the reluctance of older farmers to retire and transfer their holdings creates even more challenges for young farmers in accessing agricultural land (Chatzipetrou & Nakas, 2020; Zondag *et al.*, 2015), while the disparity in quality of life between urban and rural areas further diminishes the attractiveness of agriculture as a profession (Papadopoulos & Baltas, 2024). Job satisfaction is another factor among young farmers tending to be subpar, primarily due to insufficient measures aimed at enhancing training opportunities and improving essential infrastructure (Papadopoulou *et al.*, 2019).

Nevertheless, within the Greek farming structure exists a notable presence of personal and entrepreneurial competencies among young farmers, integrating their potential to innovate and drive agricultural development forward (Pliakoura *et al.*, 2023). Moreover, the growing trend of feminization within the farming sector presents a pathway toward enhancing farmers' competitiveness and fostering agricultural development (Safiliou-Rotschild *et al.*, 2007; Sotiriadis *et al.*, 2024; Tsiaousi & Partalidou, 2023). This demographic shift brings diverse perspectives, skills, and approaches to farming practices, contributing to innovation and resilience within the complex agricultural landscape. The convergence of socio-economic initiatives and traditional knowledge with self-realization opportunities becomes pivotal in fostering a rejuvenated agricultural sector for young people, though the reasons are manifold and the need to attract young people to work in agriculture is eminent (Girdziute *et al.*, 2022).

Against this backdrop, this study adopts a holistic approach to unravel the complexities of why there is a lack of interest in farming in Greece. By integrating the perspectives of the European legislation, socio-economic measures, and immigration dynamics, the main aim is to provide a nuanced understanding of the challenges faced by Greek farmers. The subsequent sections delve into the methodological framework of the

study, outlining a roadmap to examine the multifaceted aspects of this complex issue. Based on the findings, actionable insights for the sustainable revitalization of Greek agriculture are proposed in the discussion and conclusions sections.

2. Methodology

As the goal was to find the strongest trends within the sample, Multiple Correspondence Analysis (MCA) was used. MCA is a frequently employed statistical method utilized in extensive datasets to discern trends or pronounced variations within a sample. The novel concept termed as "interpretive axes" is introduced to differentiate the variable categories that influence the interpretation of the most prominent trends in the examined phenomenon (Moschidis *et al*., 2022). This innovative approach enables direct interpretation of results from the final plot, eliminating the need to search for specific values previously required for analysis.

2.1. Sampling framework and group characterization

The initial step in this study was to identify the target population for investigation. This encompassed four distinct groups:

- Farm workers, including both regular and seasonal workers.
- Owners of agricultural holdings whose primary or sole occupation is agriculture, with an annual individual income from agriculture below €20,000.
- Owners of agricultural holdings with an annual individual income from agriculture exceeding €40,000.
- Individuals within the general population aged 18-64.

These groups were selected for the following reasons: Currently, Greek society tends to devalue agriculture, showing little interest in engaging in it despite the broader economic challenges the country faces (Falaras & Moschidis, 2023). Additionally, there is a widespread issue of finding Greek agricultural workers, particularly during the summer months when crops need to be harvested (Lazaridis, 2020). Since the Greek economic crisis, two major social categories have emerged in Greece. On one side are the small clergy, and on the other, the large farms. The majority in these groups earn less than €20,000 per year (Falaras *et al*., 2024). These categories are considered relevant to the subject matter of this paper. Farmers with an annual income between €20,000 and €30,000 were deliberately not selected for the following reason: Since income was expected to significantly influence farmers' perceptions (Falaras *et al*., 2024), it is more interesting to investigate the behavior of the two extreme economic classes of farmers.

For data collection, the questionnaire technique was selected, with the questionnaire being electronically designed using the Google Forms platform. The questionnaire explicitly outlined the research's objectives and the participating and financing organizations. Furthermore, compliance with the General Data Protection Regulation (European Union, 2016) ensured that all participants were adults and participated voluntarily. The statement emphasized that no sensitive personal data would be recorded, and collected data would be exclusively used for research purposes. Additionally, participants were assured of their right to withdraw from the research at any time if they felt uncomfortable while completing the questionnaire.

The questionnaire comprised three parts. The first section encompassed demographic inquiries, while the second section consisted of evaluative and closed thematic questions grounded in contemporary literature pertaining to farm labor issues worldwide (Ryan, 2023; Schuh *et al*., 2019; UC DAVIS, 2024). Both these sections were administered to all respondents. Additionally, the third and final section featured three distinct questions tailored for each group within the research population, ensuring targeted insights from diverse perspectives.

The subsequent consideration involved selecting an appropriate data collection technique. Given the absence of open databases containing contact information for three out of the four research population groups, a probability sampling approach was deemed unfeasible. Consequently, a non-probability sampling method, specifically convenience sampling, was adopted. To mitigate potential sampling bias inherent in non-probability sampling, efforts were made to ensure a representative and sufficiently large sample size that could effectively represent the views of the research population (Boyd *et al*., 2023; Kocar & Baffour, 2023; Skowronek & Duerr, 2009).

2.2. Data collection process

The subsequent phase involved conducting the sampling process. A total of 1,009 responses were collected between September 20 and December 23, 2022. The majority of responses from farmers were gathered from October 20-23, 2022, at the Agrotica exhibition held at the Thessaloniki International Exhibition & Congress Center. Agrotica is a premier event for the agricultural sector in Greece and Europe, being both the largest agricultural exhibition in the country and a key event on the continent since 1985. Understanding the factors that influence individuals' engagement in agriculture is crucial for addressing the challenges faced by the agricultural sector. The approach aimed to assess various dimensions, including unpredictability of weather conditions, job stability, career development, working conditions, availability of better job alternatives, working conditions, insurance issues, limited career prospects, etc. The study employed a structured questionnaire to gather data on these various dimensions, with responses analyzed to identify key trends and areas for improvement.

With regard to the aggregated results, in order to find the most intense trends of differentiation in the sample, the method of factorial analysis of multiple correspondences was utilized. After proper filtering of the original data table, a coincidence table was created and a part of it was selected from it in order to apply the method with the help of R studio software (RStudio Team, 2020). The sample size is sufficient to draw safe conclusions from the analysis and the approach to describe and evaluate participants' reluctance towards farming are presented in Table 1. Table 2 presents an overview of the questions designed to assess participants' reluctance towards farming. It also delineates the response scales and aligns the general description approach with past and future trends identified in existing literature. Therefore, a detailed framework is provided for understanding the factors affecting engagement in agriculture and informs potential interventions to enhance the attractiveness and sustainability of agricultural careers.

TABLE 1

Approach to questions evaluating participants' reluctance towards farming

Description and reference	Question(s) regarding	Scale
Factors affecting reluctance towards agriculture (Girdziute *et al.*, 2022).	• Unstable weather conditions • Career prospects • Disadvantageous insurance status • Bad working conditions • Low income • Better alternatives • Knowledge of agriculture • Difficult work nature	1 = Not important 5 = Very important
Conditions of the agricultural profession (Schmidt & Svorny, 1998).	• Conditions of employment • Career development • Stability/security	1 = Very poor 5 = Very good
Evaluation of individuals' personal income satisfaction (Herrera Sabillón *et al.*, 2022).	• Income satisfaction	1 = Not satisfied 5 = Very satisfied
Cooperation with people of different origin, language, religion (UC DAVIS, 2024).	Perspective of cooperation with people of different origin, language, religion	1 = Awful 5 = Superb
Prevailing regime within the agricultural sector (Sokoloff & Dollar, 1997).	• Insurance • Seasonality	1 = Far below standards 5 = Far above standards
State incentives for agricultural engagement (Harkness *et al.*, 2021).	Interest	1 = None 5 = Severe

Source: Own elaboration.

3. Results & Discussion

The research sample was set up at approximately 1,000 statistical units, a size deemed adequate even for exploratory statistical analyses that typically demand extensive data. Table 2 presents a comprehensive overview of the demographic characteristics of the participants engaged in data collection, providing valuable insights into the diverse composition of the study population.

TABLE 2

Demographic profile of the participants. In percentages

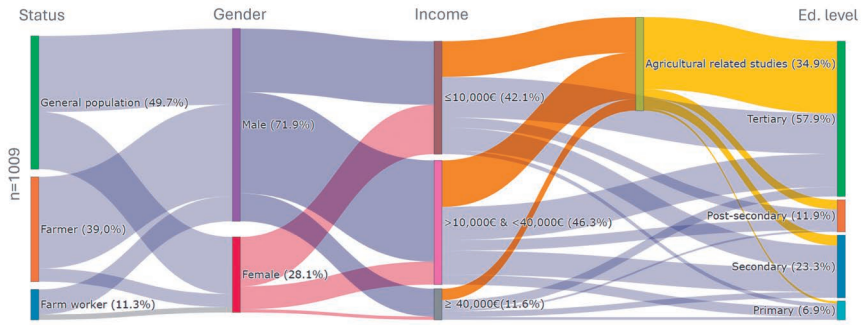
	General and secondary category	Farm Worker	Farmer (≤ 20,000 €)	Farmer (≥ 40,000 €)	General population
General	N	114	219	175	501
	Gender (Male %)	82.5	83.6	92.6	57.1
	Citizenship (Greek %)	78.9	98.2	100.0	97.2
Education	Primary education (%)	14.9	11.0	9.7	2.4
	Secondary education (%)	28.1	27.4	36.0	16.0
	Post-secondary education (%)	19.3	11.4	10.9	10.8
	Tertiary education (%)	37.7	50.2	43.4	70.9
	Agricultural related education (%)	34.2	32.4	42.9	33.3
Age class	18-24	24.6	11.0	21.7	38.3
	25-34	24.6	24.2	17.7	25.0
	35-44	21.9	19.2	20.0	11.8
	45-54	21.9	22.4	23.4	12.8
	55-64	7.0	23.3	17.1	12.2

Source: Own elaboration.

A Sankey diagram was generated to illustrate the distribution of respondents within the sampling framework, categorizing them into three groups (Figure 2): General Population (49.7 %), Farmers (39.0 %), and Farm Workers (11.3 %). Most respondents were male (71.9 %), with the majority reporting an income ranging from €10,000 to €40,000. Conversely, most female respondents reported an income below €10,000. Approximately one-third of the sample (34.9 %) indicated having agricultural related studies, either as their main field or as an additional area, while 57.9 % reported having tertiary education, with only 6.9 % having primary education. The sample flow in the Sankey diagram deviates from general income guidelines to provide an additional perspective, to avoid redundancy and to enrich the analysis by highlighting different dimensions of the data.

FIGURE 1

Sankey diagram presenting the flow of the sample based on status, gender, income, educational level, and any relevant agricultural studies



Source: Own elaboration.

3.1. Factors affecting reluctance towards agriculture

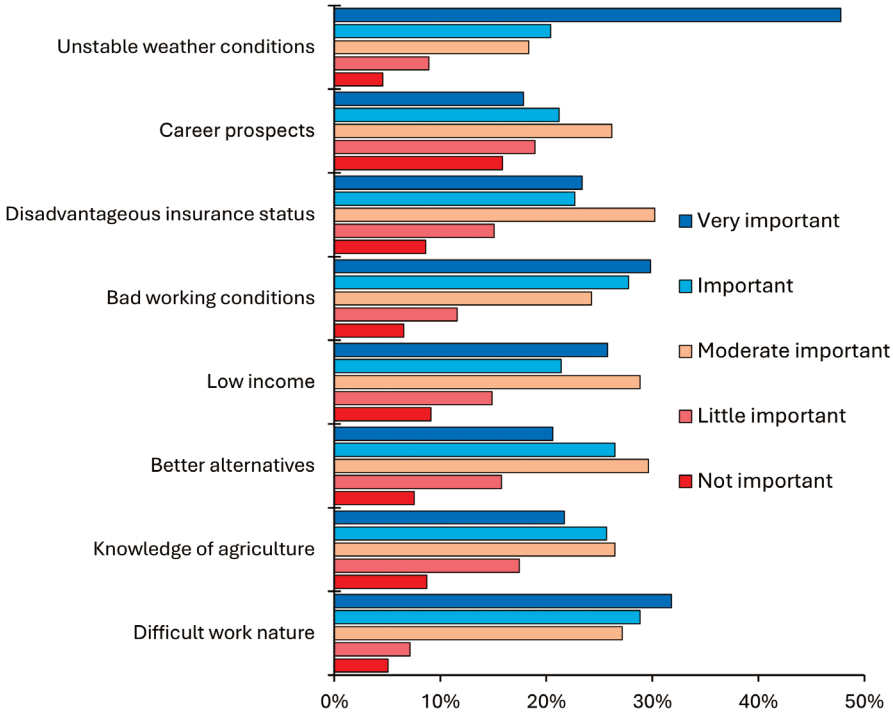
Focusing on the importance of several factors regarding peoples' lack of willingness to work in agriculture the results are presented in Figure 2. The data showcases all the respondents' perceptions regarding the importance levels of different factors, making evident that unstable weather conditions are perceived as the most significant factor influencing individuals' reluctance to work in agriculture, with 68.19 % of respondents considering it to be very important or important. Furthermore, the challenging nature of the work ranks as the second most significant factor, with a combined total of 60.65 % of respondents indicating either important or very important responses. This percentage is only comparable to the level of significance attributed to poor working conditions, which garnered approximately equal consideration at 57.58 %.

Interestingly, factors such as knowledge and better alternatives emerge as significant considerations, while the importance of career prospects is not so notable, with a considerable proportion (34.79 %) of respondents rating it as "Not important" or "Little important".

Figure 3 presents the average scores for different factors influencing the respondents' perception of agriculture. For each demographic profile as formulated in Table 1, certain factors stand out as being particularly significant, while others are deemed less important. For Farm Workers, the most crucial factor appears to be the difficult work nature, with an average score of 3.82, while unstable weather and bad working conditions play a significant role as well. Conversely, knowledge is perceived as the least important factor among them, garnering an average score of 3.03.

FIGURE 2

Importance of several factors regarding respondents' lack of willingness to work in agriculture (n = 1009)

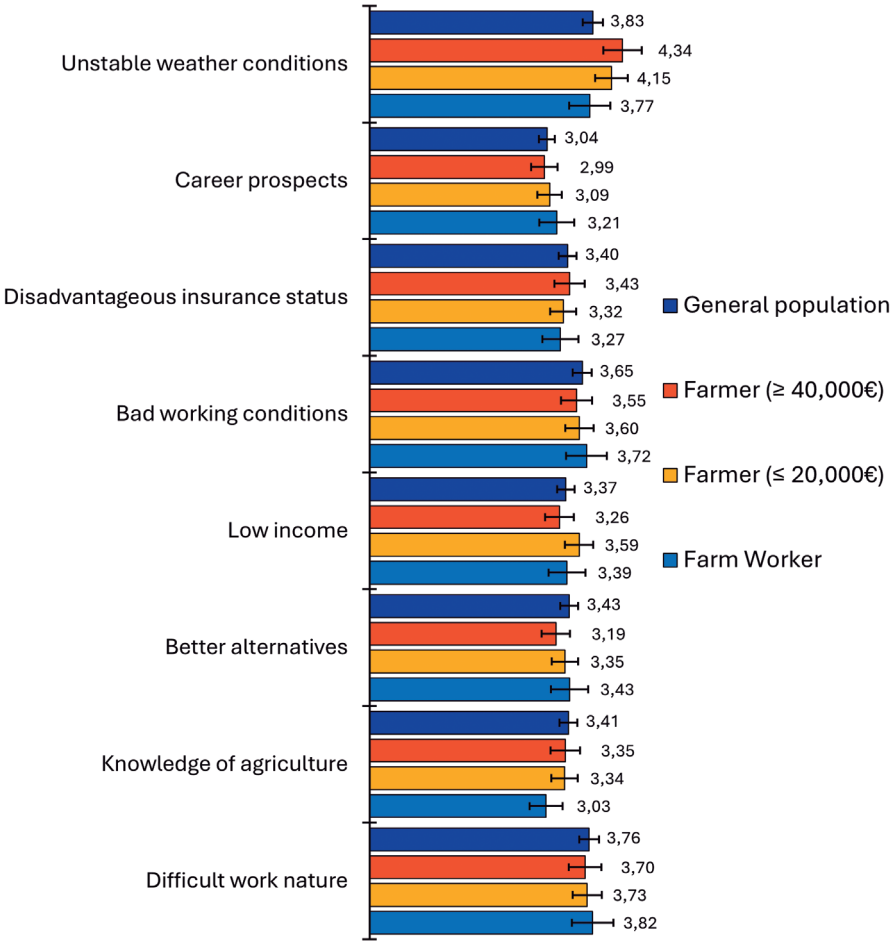


Source: Own elaboration.

Farmers with an income of less than €20,000 and more than €40,000, consider unstable weather conditions as the most significant factor, scoring an average of 4.15 and 4.34 respectively. On the contrary, career prospects receive the lowest rating between these groups, suggesting it is the least influential factor for them, with an average score of 3.09 and 2.99 respectively. The ratings for income vary among respondent groups, indicating a mixed perception assigned relatively higher importance to income for farm workers and farmers with lower income compared to their counterparts with higher incomes. General population considers unstable weather conditions the most significant factor as well, with an average score of 3.83, while career prospects are perceived as the least important factor with an average score of 3.04 (Figure 3).

FIGURE 3

Average ratings of several factors regarding lack of willingness to work in agriculture for 4 profile categories (1 = not important, 5 = very important)



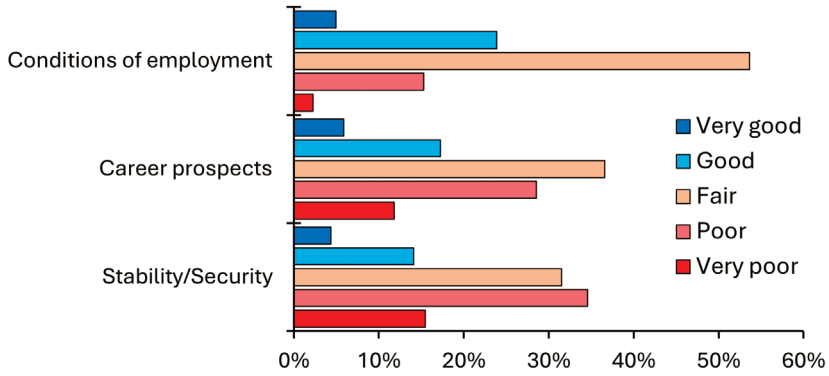
Source: Own elaboration.

3.2. Conditions of the agricultural profession

The conditions of agricultural employment are multifaceted, encompassing various factors that influence the well-being of individuals working in this sector. Ensuring fair and equitable conditions of is crucial and thus, Figure 4 presents the total respondents' assessment regarding job stability/security, career prospects, and conditions of employment in the agricultural sector, categorized from 1 = very poor to 5 = very good. The majority of respondents expressed concerns ranging from fair to very poor related to the security aspects of the agricultural profession, stating the unpredictability in the agricultural sector. Furthermore, career prospects were rated mostly as fair and poor, comprising around 65 % of the total responses, depicting limitations and challenges in terms of professional advancement in agriculture. In contrast to uncertainty and career prospects, most respondents rated conditions of employment as being, at least, "Fair".

FIGURE 4

Conditions of the agricultural profession regarding respondents' perspective (n = 1009)



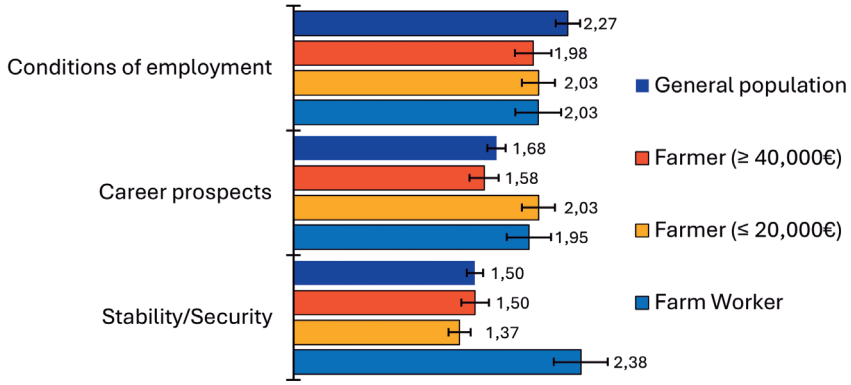
Source: Own elaboration.

Concentrating on the segmented different respondent categories, the average ratings of job stability/security, career prospects, and conditions of employment, are illustrated in Figure 5. Active farmers of any income and general population rated stability the lowest on average, indicating a higher level of concern about uncertain factors within the agricultural sector. Conversely, farm workers rated stability higher, close to fair (2.38), while career prospects were rated mostly poor (1.95). Moreover,

farmers with incomes greater than €40,000 expressed the highest confidence in career prospects, but not by a significant margin. Interestingly, the general population rated conditions of employment slightly higher compared to the other groups, indicating a perception of relatively better working conditions within the agricultural sector among the wider populace.

FIGURE 5

Average ratings of conditions of the agricultural profession for 4 profile categories (1 = very poor, 5 = very good)



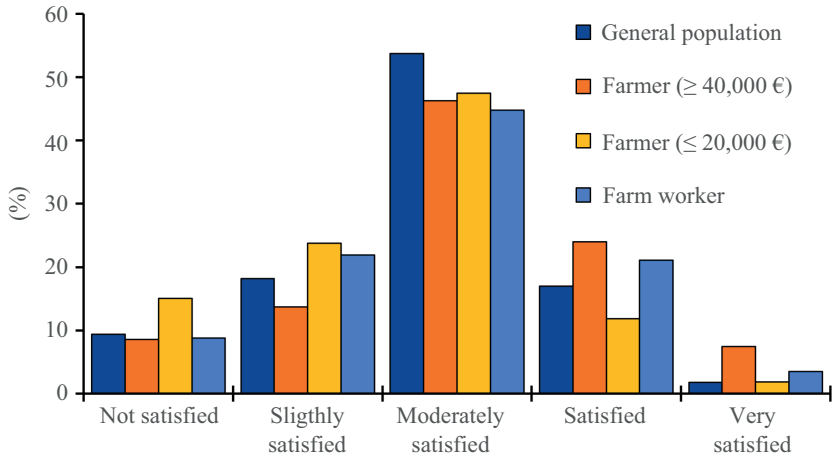
Source: Own elaboration.

3.3. Evaluation of individuals' personal income satisfaction

Providing insights about the satisfaction levels regarding financial earnings across the respondent groups, moderate satisfaction is reported (Figure 6). Among farm workers, the majority express moderate satisfaction, with 44.74 % while about 21 % express satisfied and slightly satisfied responses. Similarly, a significant portion of farmers with incomes below €20,000 and above €40,000 also report moderate satisfaction, comprising approximately 47.49 % and 46.29 %, respectively. As expected, farmers with higher incomes (≥ €40,000) exhibit a more varied response, with a sizable proportion reporting satisfaction (24 %) and the smaller fraction expressing dissatisfaction (8.57 %). Regarding the general population, the trend tends to display average satisfaction levels, with over half (53.69 %) reporting moderate satisfaction.

FIGURE 6

Income satisfaction regarding respondents' perspective for 4 profile categories



Source: Own elaboration.

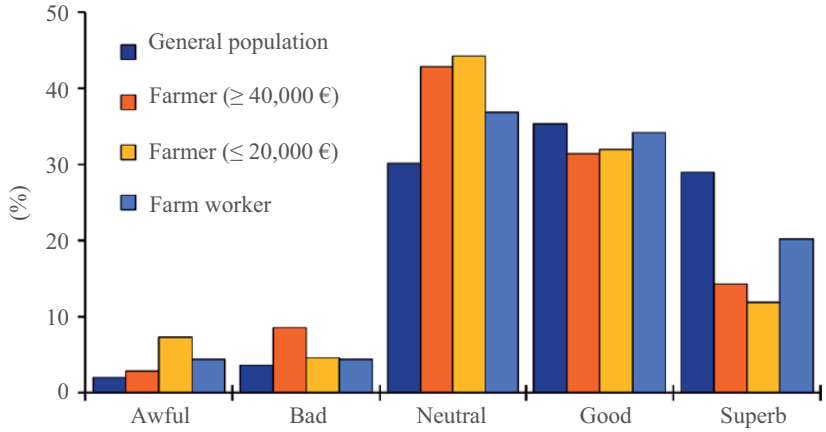
3.4. Cooperation with people of different origin, language, religion

Positive or negative attitudes towards working with individuals from diverse backgrounds align with the increasing migration phenomenon from foreign countries to work in the primary sector, highlighting the magnitude of acceptance and diversity within agricultural workplaces.

Figure 7 depicts the respondents' assessment on the potentiality of working with individuals from diverse backgrounds in terms of origin, language, religion, or culture, while the responses are categorized from awful to superb. Across all income groups and the general population, the majority of respondents rated the prospect of working with people of different backgrounds as either neutral or good, with a general population's substantial portion (28.94 %) also rating it as superb. However, there are notable awful and bad responses for farmers of lower income (≤ €20,000), indicating about 12 % negative attitude toward diversity in the workplace. Nevertheless, the negative ratings are relatively low across all groups, suggesting that outright negative perceptions are less prevalent.

FIGURE 7

Perspectives of cooperation with people of different origin, language, religion for 4 profile categories



Source: Own elaboration.

3.5. Prevailing regime within the agricultural sector

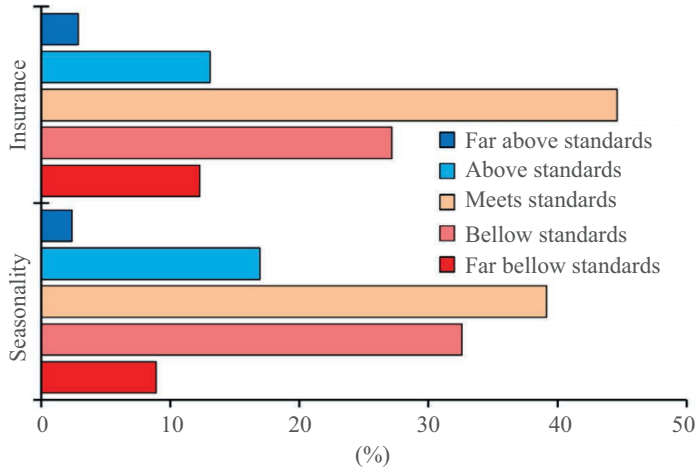
In the context evaluating the prevailing conditions is crucial for identifying areas of improvement and addressing challenges. These respondents' perceptions of seasonality and insurance conditions within the agricultural sector, provide insights into the perceived standards and areas requiring attention. Figure 8 presents the total responses of individuals (n = 1009) regarding their evaluations of prevailing conditions within the agricultural sector, focusing on the aspects of seasonality and insurance conditions. A significant proportion of respondents rated both seasonality and insurance conditions below or far below standards (41.53 % and 39.45 % respectively), indicating areas of concern. Nevertheless, the majority rated the conditions as meeting standards with 39.15 % for seasonality and 44.60 % for insurance conditions, integrating room for improvement to ensure that agricultural workers have access to optimal working conditions and insurance coverage.

Focusing on the segmented different respondent categories, Figure 9 displays the mean scores attributed by respondents to different categories, reflecting their evaluations of prevailing conditions within the agricultural sector, specifically regarding seasonality and insurance conditions. The scores range from 1 to 5, where 1 = Far below standards and 5 = Far above standards. In general, the average ratings for seasonality and insurance conditions are considered moderate across

all respondent groups, indicating neither exceptionally low nor high perceived standards. Nevertheless, there are slight variations in the scores among different segments, as general population tend to rate seasonality and insurance slightly lower compared to other groups, (2.65 for both categories).

FIGURE 8

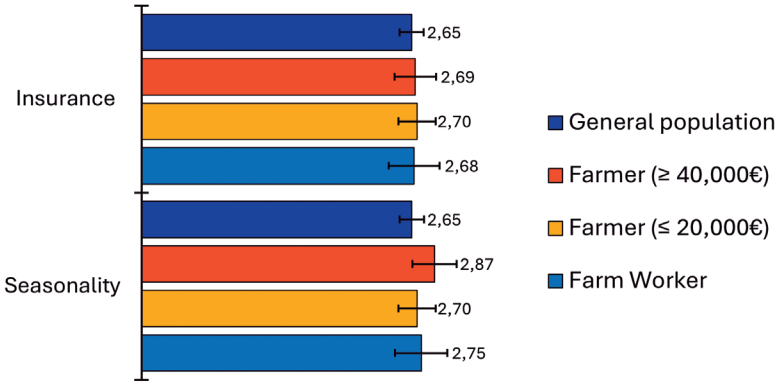
Evaluation of prevailing conditions within the agricultural sector in relation to insurance and seasonality conditions (n = 1009)



Source: Own elaboration.

FIGURE 9

Average ratings of prevailing conditions within the agricultural sector in relation to seasonality and insurance conditions for 4 profile categories (1 = far below standards, 5 = far above standards)



Source: Own elaboration.

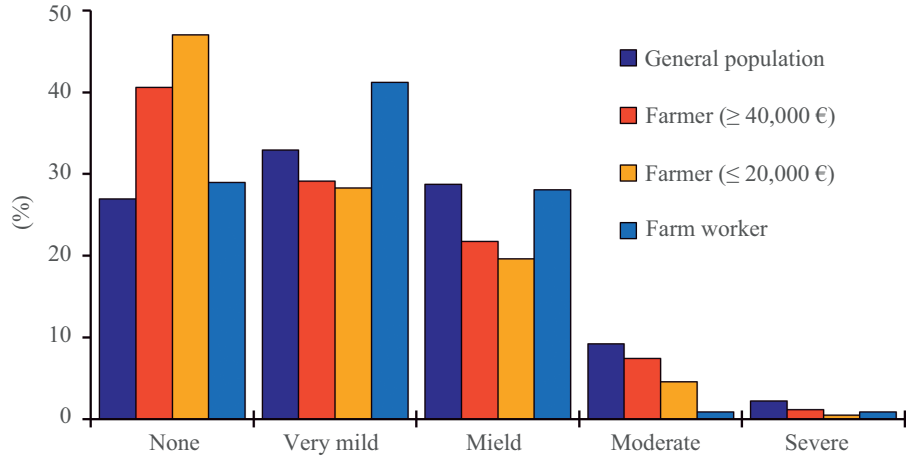
3.6. State incentives for agricultural engagement

The final section of on direct question depiction underlines the responses of individuals regarding their perspectives on the incentives provided by the state to encourage engagement in agriculture. Support interest from the state is categorized from none to severe based on their perceived impact.

Figure 10 provides valuable insights into the perceptions of different segments of the population regarding the incentives offered by the state to encourage involvement in agriculture. Notably, a significant proportion of respondents across all profiles perceive the incentives to be minimal, with the majority indicating either none or very mild interest (above 59 % for all categories). Nevertheless, there are variations in perception across different income brackets, with higher-income farmers tending to perceive incentives as milder compared to lower-income farmers and farm workers. Moreover, the general population highlights the highest percentages regarding the state's interest with 9.18 % and 2.20 % replying moderate or severe interest respectively. Considering diverse perspectives, people inside the agricultural workforce are more discouraged regarding agricultural policies and incentives to effectively address their needs and concerns within the agricultural sector.

FIGURE 10

Perspectives on the state's interest to encourage engagement in agriculture for 4 profile categories



Source: Own elaboration.

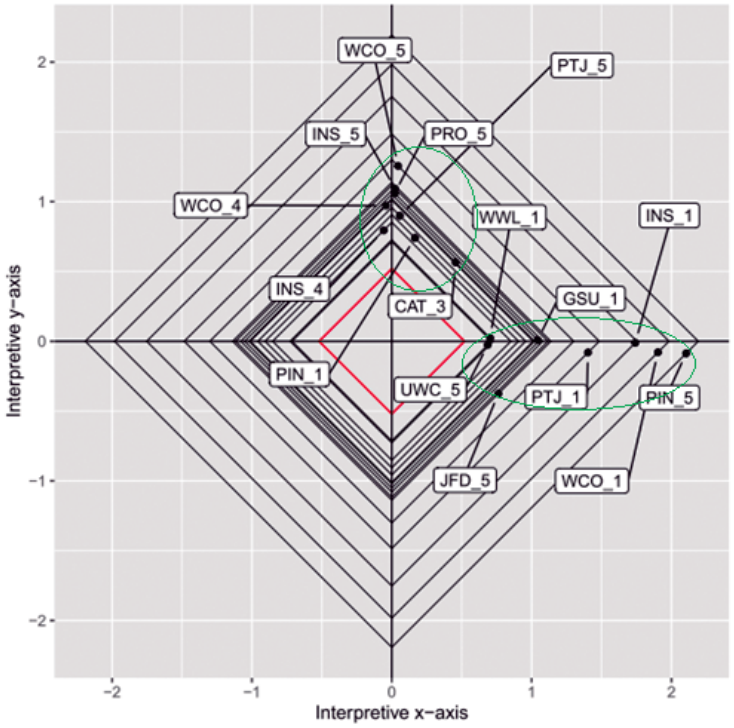
3.7. Multiple Correspondence Analysis

Through successful application of MCA method to the current research dataset, a distinct interpretive framework emerges in Figure 11. The further away a point is in the plane from the beginning of the axes, the more pronounced its differentiation within the sample.

Hence, two significant trends emerge. Farmers earning an annual income exceeding €40,000 perceive excellent employment conditions, robust insurance coverage, promising prospects for development, highly favorable seasonal employment patterns, and minimal professional uncertainty. On the contrary, the remainder of the sample perceives excessive uncertainty, poor working conditions, inadequate insurance coverage, negative seasonal employment trends, insufficient governmental support for the agricultural sector, arduous labor conditions, extensive weekly working hours, and unstable weather conditions as substantial impediments.

FIGURE 11

Interpretative level of MCA



WCO_5: Very good employment conditions
PTJ_5: Very positive fact of seasonal employment in agriculture
PRO_5: Very positive career prospects
INS_5: Very positive insurance scheme for farmers
WCO_4: Good employment conditions
INS_4: Positive insurance scheme for farmers
PIN_1: Very little professional uncertainty
CAT_3: Farmers with income exceeding 40.000€ per year
UWC_5: Weather conditions as a very important deterrent to farming
WWL_1: Too many working hours per week
JFD_5: Very high difficulty of farming
CSU_1: Very little state interest in supporting agriculture
PTJ_1: Very negative fact of seasonal employment in agriculture
INS_1: Very negative insurance scheme for farmers
WCO_1: Very band employment conditions

Source: Own elaboration with R studio.

4. Discussion

4.1. Farm workers

Several noteworthy findings emerge from the data analysis. The data reveals a predominant demographic profile among land workers, with the majority (93 %) being under the age of 55 and predominantly male (83 %). Approximately 53 % report an annual income exceeding €10,000. Key inhibiting factors for engaging in agriculture include perceived job difficulty (91 % rate it as a moderate to very important inhibiting factor), availability of better occupational alternatives (80 % rate it as moderate to very important), limited financial rewards (76 % rate it as moderate to very important) and poor working conditions (73 % rate it as moderate to very important) which are reported by Chatziioannidis & Partalidou (2024) as well. Apart from the aforementioned factors, health and safety risks associated with agricultural activities represent another aspect not considered in this research, though they are a widespread concern across Europe (Jakob *et al*., 2021). These risks are acknowledged as significant, given that agriculture illustrates a higher incidence of workplace accidents compared to other economic activities in Greece (Evangelakaki *et al*., 2020).

Additionally, 49 % of agricultural workers express negative views regarding the seasonal nature of agricultural employment, whereas collaboration with individuals of diverse origins and languages is viewed positively. Both immigrant and native workers face a significant challenge with seasonality, as in many cases they do not receive unemployment benefits, social security, paid holidays, or provisions for sickness or maternity leave (Hurst *et al*., 2007). Nevertheless, the process of social integration for migrant laborers is not straightforward, as numerous studies underscore their exploitation and precarious working conditions (Kukreja, 2021; Papadopoulos & Fratsea, 2017; Papadopoulos *et al*., 2018; 2021). The latter relates to the responses to specialized inquiries, revealing moderate levels of personal contentment with both working conditions and earnings (57 % and 56 % respectively).

4.2. Farm owners earning less than 20K

In relation to farmers earning less than €20,000 annually, several significant findings come to light. Most of them (68 %) lack relevant educational background in the field, have limited experience, underscoring a longstanding necessity for better-educated farmers, particularly concerning environmentally sustainable practices (Pyrovetsi & Daoutopoulos, 1999). The primary inhibiting factors include the challenging nature of the work (81 % rating it as moderately to very important), lack of expertise (62 % rating it as moderately to very important), inadequate financial remuneration (76 % rating it as moderately to very important), substandard working conditions (74 % rating it as moderately to very important), unfavorable insurance policies (60 % rating it as moderately to very important), and unpredictable weather

conditions (85 % rating it as moderately to very important). However, land access represents another significant aspect for farmers, not addressed in the present study but acknowledged as a prevalent issue across the entire European region (Pechrová *et al*., 2018; Schuh *et al*., 2019).

Special reference should be made to the open-ended question, in which respondents highlighted various external challenges faced by the agricultural sector, such as equipment procurement difficulties, rural living challenges, regulatory obstacles, high input costs, societal devaluation of the profession, excessive taxation, intense competition, export difficulties, and climate change concerns. Despite moderate job satisfaction (51 %), most farmers are moderately inclined to recommend their profession (42 %), indicating a certain ambivalence towards changing careers (45 % express moderate willingness to do so), highlighting their strong attachment to their occupation and land. Moreover, Greek farmers are often perceived as primarily focused on short-term income, as their main concerns typically revolve around minimizing harvest losses and reducing water usage, with less emphasis on efforts to improve biodiversity, to comply with regulations (Kernecker *et al*., 2016) and to use lower risk pesticides (Damalas *et al*., 2024).

4.3. Farm owners earning more than 40K

Farmers with income above €40,000 gave similar answers to farmers with an annual income of less than €20,000. However, it is interesting that the present group has studies related to the agricultural sector to a greater extent and more experience. Even though profit maximization is the major goal of farmers among others (Tziolas *et al*., 2017; 2022) providing the desirable social status, the responses to the open-ended question in this group highlighted a concern related to the "devaluation of agriculture by society", indicating the need for deeper investigation into this matter. Finally, there is a convergence between agricultural workers and farmers with an annual income of more than €40,000 that the farmer-employers are consistent in their financial obligations towards their employees. Nevertheless, the farmers-employers express the belief that they offer satisfactory wages and working conditions, but the farm workers express the belief that their wages and working conditions are average, generating an opinion gap between employers and workers in the agricultural sector.

4.4. General population

The general population exhibits intriguing patterns in its perceptions of the agricultural sector. Despite being less directly involved in agricultural activities, compared to the other surveyed groups, they tend to assess several aspects of the sector more negatively. More specifically, a significant portion (60 %) expresses a neutral to very negative inclination towards engaging in agriculture. Nonetheless, they perceive the level of uncertainty in agriculture as relatively low and hold optimistic views regarding its development potential.

Interestingly, the presence or absence of financial support, including the possibility of unemployment benefits, appears to significantly influence the general population's intention to pursue agricultural activities, as it limits their access to the latest technological advancements and innovations (Cristian & Ivascu, 2021). Notably, the absence of financial support leads to a 30 % decrease in the propensity to engage in agriculture. Similarly, the notion of inadequate resources, such as insufficient capital and agricultural land, emerges in the open-ended responses, converging to the conclusions for growing need for financial support and a financial gap in the last 5 years (fi-compass, 2023). It's plausible that awareness of such limitations within the population serves as a deterrent for potential engagement in agriculture.

The question arises as to why, despite moderate income satisfaction and the relatively promising outlook for agricultural development, individuals are hesitant to pursue a profession characterized by challenging working conditions, but with less uncertainty and favorable prospects. On the one hand, the trend of older farmers in retaining their farms could introduce a novel social dynamic contributing to the hesitancy observed among younger farmers (Conway *et al*., 2022). On the other hand, this hesitancy might also be influenced by the appeal of alternative career trajectories perceived as more favorable, which, in reality, may simply be perceived as easier (Girdziute *et al*., 2022; Unay-Gailhard *et al*., 2019).

4.5. Overall ascertainments

The notable contrast lies in how different income brackets perceive agriculture in Greece. Farmers earning over €40,000 annually are represented on the x-axis (Figure 11) and tend to view working conditions as good to very good. They consider seasonal employment in agriculture highly positive, envision very promising professional prospects within the field, rate the insurance scheme as good to very good, and experience minimal professional uncertainty.

On the other hand, a trend emerges on the y-axis, comprising the remaining categories of the sample, which consider unstable weather conditions as a significant deterrent factor for engaging in agriculture. The weekly workload is very high, agriculture is a very challenging job, there is very little interest from the state in supporting agriculture, they view seasonal employment in agriculture as highly negative, consider employment conditions to be very poor, and face considerable professional uncertainty.

These findings are supported by existing literature. High-income farmers typically exhibit strong entrepreneurial orientation and a propensity for innovation (Falaras et al., 2024). As a result, they reap numerous economic advantages, such as heightened labor productivity and enhanced product quality (Falaras & Moschidis, 2021). These advantages contribute to income growth, subsequently improving working conditions, job opportunities, and insurance coverage, as indicated by the findings.

5. Conclusions

The overall ascertainments lead to the following conclusions: Undoubtedly, agriculture is a challenging occupation, demanding in terms of workload. Additionally, the factor of unstable weather conditions must be taken into account, which, amidst climate change, gains even greater significance. However, the issue is not whether agriculture is a good or bad occupation. Observing the distinction that emerged from the results, the issue lies in providing the general population and farmers who have not been so successful until now with the appropriate information on how agricultural exploitation can become economically efficient, with all the benefits it entails. The keywords here are innovation and proper entrepreneurial orientation, which will result in satisfactory economic performance. An economically efficient agricultural exploitation will inevitably improve the work of farmers, enhancing their perception of their work.

In pursuit of addressing the core inquiry, discernible patterns emerge particularly concerning farm workers. The occupation entails seasonal employment entwined with arduous labor and unpredictable weather conditions, compounded by an unfavorable insurance system, moderate working conditions, and wages. On the contrary, for small-scale farmers, while their affinity for the profession is evident, the challenges remain as well. The demanding nature of farming, often leading to prolonged working hours adversely impacting productivity, coupled with insufficient knowledge and inadequate state support, poses significant obstacles. One potential avenue for advancement could be through industrialization, albeit reliant on low-cost labor markets and necessitating modern management expertise (Dedieu, 2019). However, Greek family-based farms typically consist of fragmented and small-scale structures, highlighting the urgent requirement to bolster managerial capabilities in comparison to an overarching objective of achieving sustainable agriculture and producing high-quality products (Iakovidis *et al*., 2023; Kyriakopoulos *et al*., 2023).

In this context, a proactive approach from both the policymakers and farmers to calibrate the agricultural sector's resilience and profitability through skill enhancement initiatives is needed. Although major policy recommendations incorporate goals towards better quality of rural employment and young generation's retention within the sector (Schuh *et al*., 2019), the current farm labor scarcity underlines the urgency to address worker grievances, as their discontent risks exacerbating the sector's challenges. Many countries globally prioritize lifelong learning initiatives, the cultivation of an appealing profile for agriculture, and the implementation of social safeguards for migrant labor (Ryan, 2023), while the European policies placed greater emphasis on sustaining a flow of migrant workers, not prioritizing and ensuring adequate working conditions (Corcione, 2022; Szelewa & Polakowski, 2022). However, the European policy directives should also tackle significant challenges including climate change mitigation, biodiversity conservation, and food security, presenting a formidable task to integrate all these diverse concerns.

In this context, agricultural policies should alleviate the evident concerns within the public regarding the social integration of immigrants, acknowledge and incentivize the crucial contributions of women, and harness the strong potential profitability through agriculture. This task should be approached by considering the demographic attributes of the European farming population, utilizing disaggregated data, employing rational decision-making processes, and employing credible research methodologies (Sutherland, 2023). This management technique presents challenges as it prompts inquiries into societal values and educational frameworks, necessitating further investigation (Rivera-Ferre *et al*., 2013). Nonetheless, there is optimism regarding a more promising professional future, provided that modern Greek farmers are willing to endure the requisite sacrifices. Yet, the contemporary societal inclination towards convenience, particularly among the younger demographic, underscores the imperative need for policy interventions to enhance the sector's allure and viability.

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