

THE ROLE OF DEMOGRAPHIC FACTORS IN CAREER MOTIVATION IN A REGIONAL CROP PRODUCTION CLUSTER

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Abstract: This study aims to examine the influence of demographic factors on career motivation within a regional crop production cluster. The research topic aligns with contemporary understandings of building a sustainable professional environment, fostering teamwork, and strengthening commitment to scientific organizations and academic institutions. The primary focus is placed on employees' attitudes toward their organizations, their engagement, perceptions of future development opportunities, and loyalty, rather than a narrow analysis of motivation alone. The empirical part of the study was conducted through a standardized questionnaire distributed online between December 2024 and March 2025. A total of 201 respondents participated, with the questionnaire available in both Bulgarian and English. It included five questions—four collecting basic demographic information (gender, age, position, and type of organization), and one key question comprising 27 statements aimed at measuring emotional attachment, sense of belonging, loyalty, and perception of alternative opportunities. Responses were rated using a seven-point Likert scale.

The analysis of the collected data indicates that demographic characteristics such as gender, age, and professional experience have a significant impact on motivational attitudes and career-related behavior. These findings highlight the importance of the socio-demographic context in shaping human resource management policies within agricultural and scientific clusters.

Keywords: career motivation, demographic factors, professional development, agricultural sector

1. INTRODUCTION

The study of demographic factors and their impact on career motivation in the context of a regional agrarian cluster is essential for understanding the dynamics of the labor market in the sector. Although demographic characteristics such as age, gender, education, and social status are traditionally considered in the context of employee motivation, their specific influence on the agricultural sector and regional clusters remains insufficiently explored.

In this context, research by Lorincova et al. (2022) shows that the COVID-19 pandemic led to a significant decrease in employee motivation in agricultural and forestry organizations, with age and gender influencing this process.

Other studies, such as that by Bang and Han (2025), highlight that young farmers with higher education and larger agricultural areas are more likely to adopt new technologies in agriculture, suggesting that demographic factors may influence motivation for career development in the agricultural sector.

The research by Guerra et al. (2023) examines the impact of digital transformation on talent management in the agricultural sector, emphasizing the importance of the human factor in the development of knowledge and

entrepreneurial processes. José Manuel Montero Guerra, Ignacio Danvila-del-Valle, and Mariano Méndez explore the influence of digital transformation on talent management (Guerra, Danvila-del-Valle, Suarez, 2023).

The study of the human factor plays a central role in the development of knowledge networks (Reagans and Zuckerman, 2001) and in entrepreneurial processes (Camelo et al., 2000; Li et al., 2006; Becerra and Álvarez, 2011).

These studies highlight the need for a deeper understanding of the relationship between demographic factors and career motivation in the agricultural sector, especially in the context of regional clusters, which may present unique opportunities and challenges for individuals' professional development.

An example is provided by the study of Consentino et al. (2023), which identifies various factors influencing young people's decision to pursue a career in agriculture, including social, economic, and educational aspects. Similarly, the research by Huber et al. (2025) examines farmers' motivation to participate in cooperative agricultural initiatives, emphasizing the importance of economic and demographic factors in this decision.

2. MATERIALS AND METHODS

The study was conducted in accordance with the Guidelines of the International Test Commission for the translation and adaptation of tests, and the concept of modification of the three-component model of organizational commitment proposed by Meyer and Allen (1991). The questionnaire was adapted for the purposes of the study by adding additional questions aligned with demographic factors and career motivation in the context of a regional crop production cluster.

The online questionnaire was developed in both Bulgarian and English and distributed via the internet. The survey form contained a total of five questions, four of which referred to basic demographic information about the respondents, including gender, age, position, and type of organization in which they work. The target group included researchers from scientific organizations, universities, and business companies engaged in research and development activities. The territorial scope of the respondents covered a regional crop production cluster in the South Central Region of Bulgaria (Plovdiv, Kardzhali, Pazardzhik, Haskovo, and Stara Zagora).

In a preliminary stage, more than 1,000 respondents were selected based on territorial criteria and their work in fields such as plant biology, biotechnology, agricultural sciences, vegetable production, fruit growing, food technologies, medical biology, and others. The survey began with the staff of the Center for Plant Systems Biology and Biotechnology (CPSBB) and the Maritsa Vegetable Crops Research Institute – Plovdiv. Respondents from all universities and research institutes in Plovdiv were invited to participate, including the Agricultural University, the Medical University, Plovdiv University, the University of Food Technologies, and the "Stefan Angelov" Institute of Microbiology – Bulgarian Academy of Sciences, as well as business organizations in the South Central Region with researchers on their teams.

The questionnaire was completed online during the period from December 2024 to March 2025. During this period, 201 valid responses were received, including 8 completed in English. The study was anonymous in order to ensure the authenticity of the responses. The reliability and internal consistency of the questionnaire as a measurement tool were confirmed through a sample from one organization (CPSBB).

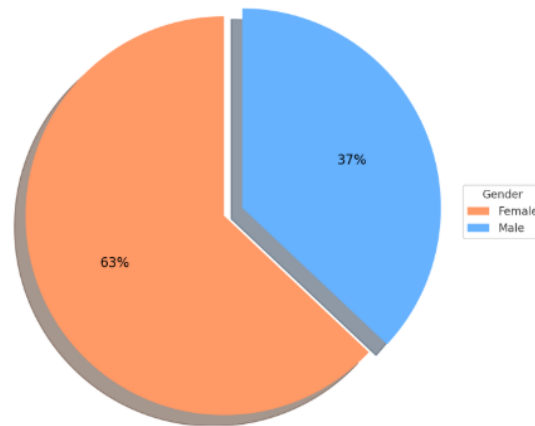
The collected data were processed using IBM SPSS. The analysis applied an analytical approach that involved breaking down the research subject into its constituent elements and synthesizing the resulting characteristics and conclusions. The findings and recommendations from the study are based on a critical significance level of $\alpha = 0.05$ and a confidence level of 95%.

3. RESULTS

The first stage of the analysis of the empirical data encompasses the examination of the main demographic characteristics of the studied group, with gender and age of the respondents being the most significant among them. These indicators are of substantial importance, as they determine the social and professional context within which attitudes and behaviors related to work motivation and career development are shaped. Figure 1 presents the gender distribution within the sample. The data reveal a clear predominance of women – 63% of respondents, compared to 37% men. These values should be identified as a defining factor in the interpretation of all subsequent results. The predominance of female participation may influence the assessments of motivational incentives, value orientations, and expectations regarding professional development. Research in the field of work motivation indicates that there are differences between genders in terms of preferred incentives for career growth, as well as in the way opportunities for advancement and recognition are perceived. Therefore, in the absence of a gender-segmented analysis, there is a risk that the obtained results may primarily reflect the female perspective, thus limiting the scope of the conclusions. For this reason, when analyzing motivational factors, it is necessary to consider the results

separately by gender and to emphasize that the observed trends are strongly influenced by the predominant share of women in the sample.

Figure 1. Summary information on the respondents' gender

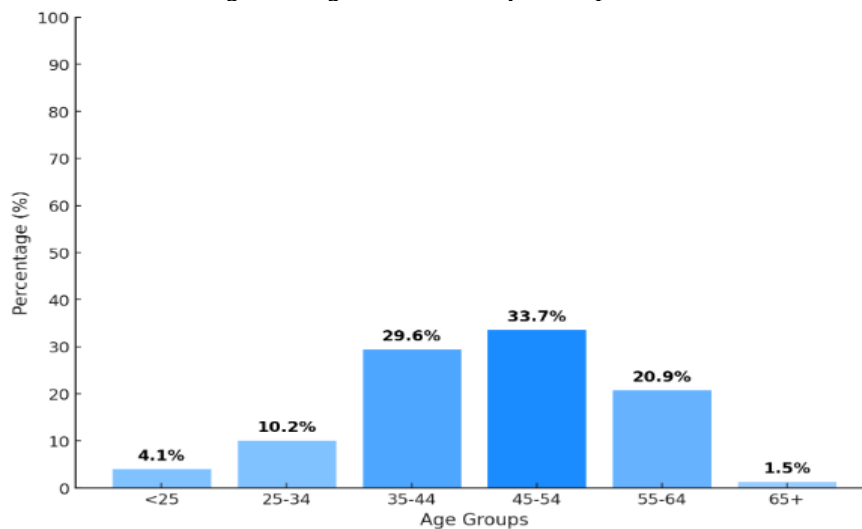


Source: Authors' research

Age is another essential demographic indicator that has a direct impact on the formation of work motivation. It reflects not only biological differences but also accumulated professional experience, social responsibilities, and priorities that shape aspirations for development. The analysis of the age distribution of the study participants provides additional information about the professional and life context in which motivation for career development is formed. Figure 2 presents the distribution across age groups. Younger participants usually demonstrate greater willingness to acquire new knowledge, take risks, and pursue professional advancement. In turn, older respondents often occupy stable professional positions, possess long-standing experience, and have a different set of expectations related to stability and security. These differences are significant for the analysis of career motivation, as they may explain variations in the assessment of factors that encourage development.

Due to the outlined specificities associated with this indicator, the age structure should not be viewed solely as a descriptive characteristic but as an analytical tool for examining potential relationships between age and motivational mechanisms. This approach makes it possible to identify age-specific patterns of work behavior and to assess the need for applying different management approaches to the respective age groups.

Figure 2. Age distribution of the respondents



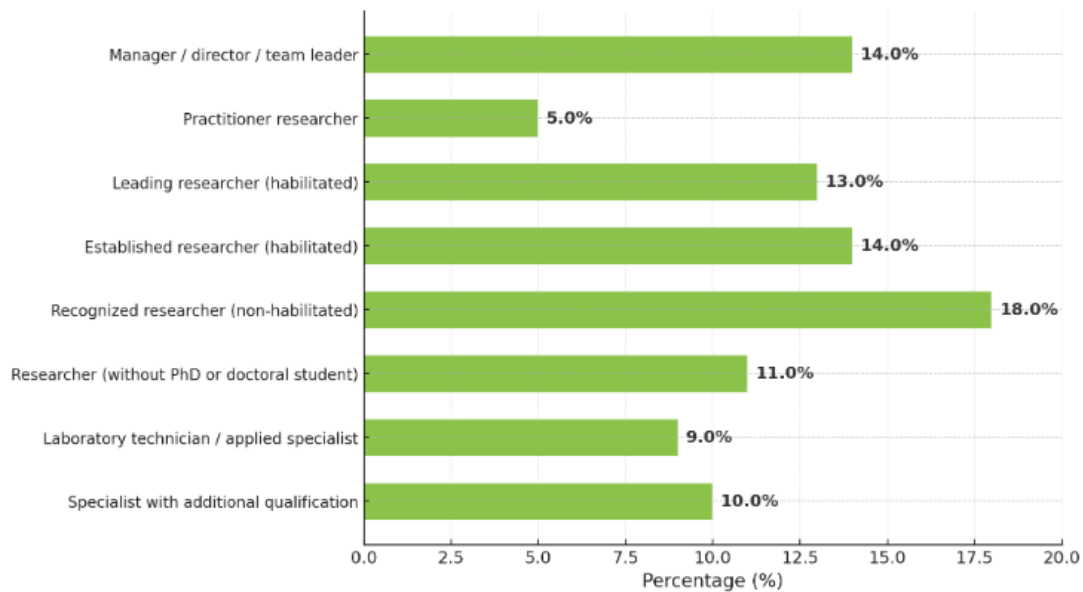
Source: Authors' research

The largest relative share is held by the age group 45–54 years (33.7%), followed by the group 35–44 years (29.6%). This clearly highlights the predominance of professionals in the mid and mature stages of their career path, which implies accumulated professional and life experience, as well as a stronger interest in sustainable development, stability, and opportunities for professional advancement within the organization or sector. The 55–64 age group accounts for 20.9% of respondents, also emphasizing the significant presence of employees whose motivational profile may be oriented toward recognition of contribution and knowledge transfer. The age groups 25–34 years (10.2%) and under 25 years (4.1%) are underrepresented in the sample, indicating limited participation of specialists in the early stages of their professional development. This distribution may reflect both the characteristics of the sector itself—including the need for practical experience, additional qualifications, and long-term scientific specialization—and the presence of demographic and organizational factors that hinder the entry of younger professionals. The least represented group is over 64 years, with only 1.5%, which is expected given the usual boundaries of work activity.

The analysis of the age distribution reveals a clear concentration of participants within the 35–54 age interval, which corresponds to the period of highest professional activity. This provides a favorable basis for examining motivational attitudes related to professional consolidation, the pursuit of career growth, as well as achieving a sustainable balance between work engagement and personal life.

In addition to the demographic analysis, the present study also examines the professional structure of the participants in order to gain a deeper understanding of the context in which motivational attitudes toward career development are formed. Figure 3 presents the distribution of respondents according to their position within the crop production cluster.

Figure 3. Distribution of Respondents by Position in the Crop Production Cluster



Source: Authors' research

4. DISCUSSIONS

The analysis of the demographic data revealed that 63% of participants are women, and the largest share belongs to individuals in the 45–54 age group (33.7%). The professional profile of respondents is dominated by recognized researchers (18%) and managerial staff (15%), which underscores the importance of academic experience for motivation. Institutional affiliation shows a predominance of the public sector, with 38.8% of respondents employed in research institutions under the Bulgarian Academy of Sciences (BAS) and the Agricultural Academy.

The largest share is held by individuals in the 45–54 age group (33.7%), which suggests established professional experience and potential for mentorship within the organization. The professional profile is concentrated on recognized researchers (18%) and managerial staff (15%), highlighting the link between academic experience and career motivation.

Institutional affiliation reveals a predominance of the public sector, with 38.8% of respondents employed in research institutions under BAS and the Agricultural Academy. This indicates that motivational mechanisms and factors for career development are closely connected to the institutional environment and the specific requirements of research work.

Demographic characteristics—such as gender, age, and professional experience—have a significant impact on career motivation in the regional crop production cluster. The predominance of experienced researchers and managerial staff highlights the necessity of developing strategies that ensure talent retention and facilitate knowledge transfer within institutions. At the same time, the public sector emerges as a central actor in shaping motivational practices and in designing structured career pathways for professionals engaged in research and development.

Several challenges remain evident. A key issue concerns the balance between the expectations of experienced professionals and those of younger specialists with regard to career development opportunities. Furthermore, the limited involvement of the private sector restricts the scope for implementing innovative approaches to motivation and professional growth. In this context, it becomes essential to adapt motivational instruments to the needs of different demographic groups in order to enhance the effectiveness of talent retention policies and to sustain long-term development within the sector.

Table 1. Demographic profile of respondents and main conclusions

Category	Results	Main conclusions
Gender	63% women	Influence of motivational factors specific to women
Age	Largest share: 45–54 years (33.7%)	Presence of experienced staff with mentoring potential
Professional profile	Researchers 18%, managers 15	Academic experience and leadership positions are associated with higher motivation
Institutional affiliation	Public sector 38.8% (BAS and Agricultural Academy)	Motivation and career development are dependent on the institutional environment

Source: Authors' research

5. CONCLUSIONS

The analysis of the empirical data revealed that the demographic characteristics of participants in the study—namely gender, age, and professional experience—have a significant impact on the formation of motivational attitudes and career-related behavior within the regional crop production cluster. These characteristics determine not only the individual aspirations and expectations of specialists but also the way they perceive development opportunities and adapt to the organizational environment. The results confirm that career motivation in the agricultural sector should not be viewed as a homogeneous or static process; rather, it constitutes a dynamic and multilayered system shaped by the interplay of demographic and institutional factors, which interact in a complex interdependent manner.

The demographic structure defines the accumulation of experience, competencies, and social capital, while the institutional environment establishes the framework within which these resources can be developed and utilized. This interaction gives rise to different patterns of motivational behavior, which cannot be managed through uniform approaches. Consequently, there is a need to implement differentiated management strategies that take into account age and professional differences and promote the integration of the accumulated experience of established personnel with the creative and innovative potential of younger specialists. Such an approach allows for the development of a balanced workforce structure, in which continuity and stability are combined with renewal and the capacity to adapt to the changing demands of the sector.

In this context, creating a sustainable environment for workforce development in regional crop production clusters requires targeted and long-term human resource management aimed at maintaining a balance between preserving and enhancing accumulated expert potential and fostering the professional growth of the new generation of specialists. Only by establishing such a mutually reinforcing environment can long-term sustainability, increased productivity, and strengthened competitiveness of the sector be ensured in the face of growing economic, technological, and social challenges.

ACKNOWLEDGEMENTS

The authors acknowledge project Motivation (project No. KII06H65/15), funded by the Bulgarian National Science Fund, and project funded by the European Regional Development Fund through Programme Research Innovation and Digitalisation for Smart Transformation (PRIDST), Grant agreement № BG16RFPR002-1.014-0003.

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