



Impact of employment policies on disabled individuals in silvicultural activities

Halil Baris Ozel¹ · Hakan Sevik² · Mehmet Cetin³ · Tugrul Varol¹ · Berkant Isik¹

Received: 29 August 2023 / Accepted: 10 May 2024 / Published online: 20 May 2024
© The Author(s) 2024

Abstract

The prevalence of disability within societies necessitates empowering disabled individuals for their social and economic contributions. This study evaluates the impact of employment policies on the economy and well-being of disabled individuals in Turkey's silvicultural sector during the COVID-19 pandemic. Focusing on physically disabled individuals engaged in silvicultural tasks from 2018 to 2021 in the Western Black Sea region it reveals an increase in their involvement despite a decrease in income, attributed to fewer workdays. The data collectively indicates that there was a minimum increase of 210% in the number of physically disabled individuals employed in silvicultural roles by private forestry companies between 2018 and 2021. The 3rd group, characterized by a 40–60% working capacity reduction, exhibited the highest employment rate, increasing from 56 individuals in 2018 to 137 in 2021. In contrast, the 2nd group (60–80% working capacity reduction) showed variable trends, reaching 11 employed individuals in 2020 before declining to 6 in 2021. Legal obligations often lead to employment in low-income roles, hindering economic contributions. Male employment is higher, highlighting gender disparities. Education levels are generally low with recent increases in primary and secondary school graduates due to compulsory education. To create more inclusive opportunities disabled individuals could be trained for roles like planning and monitoring in forestry requiring specialized training.

Keywords Disabled · Employment · Forestry · Silvicultural works

✉ Mehmet Cetin
mehmet.cetin@omu.edu.tr; mehmet.cetin.landscape.architect@gmail.com

¹ Faculty of Forestry, Department of Forest Engineering, Bartın University, Bartın, Turkey

² Faculty of Engineering and Architecture, Department of Environmental Engineering, Kastamonu University, Kastamonu, Turkey

³ Faculty of Architecture, Department of City and Regional Planning, Ondokuz Mayıs University, Samsun, ilkadim 55020, Turkey

1 Introduction

The definition of disability varies in international texts depending on the specific aims and scope. For example, the International Labor Organization characterizes disability as “a person who is disabled and has a significantly reduced capacity to perform a suitable job, retain that job, and advance in it due to physical and mental impairments.” Conversely, the United Nations General Assembly defines disability as “diverse functional limitations resulting from deficiencies in a person’s physical, psychological, or sensory systems.” The World Health Organization describes disability as “an individual not enjoying complete well-being across physical, psychological, and social dimensions” (Kocabaş, 2018).

In the context of Turkey, the definition of a disabled individual diverges. According to Turkish regulations, a disabled individual is “a person who experiences challenges in adapting to social life and fulfilling daily needs due to the congenital or acquired loss of physical, mental, psychological, emotional, and social abilities, necessitating protection, care, guidance, and support services” (Yurttakal, 2019). Legal provisions in Turkey further define a disabled individual as someone who is “impacted by societal attitudes and environmental conditions that hinder them from fully and effectively participating in society, distinguishing them from other individuals due to varying degrees of impairment in physical, mental, psychological, and emotional aspects” (Topgül & Yıldırım, 2018).

Disability stands as a significant factor contributing to social exclusion. For individuals with disabilities, exclusion from social relationships, cultural and communal activities, access to essential services, immediate surroundings, and economic opportunities constitutes a form of secondary disability (Genç and Çat, 2013). As a result, facilitating their integration into social life becomes of paramount importance, rendering employment a critical avenue. Numerous studies underscore the vital role of employment for disabled individuals in enhancing their overall well-being and quality of life (Wojnarowska, 2021; Chajduga & Ingaldi, 2021). Engaging in work not only has the capacity to elevate self-confidence and life standards among disabled individuals but also yields valuable contributions to both societal and economic dimensions (Anıl, 2019).

Participating in the workforce not only yields financial income but also cultivates heightened self-assurance and a greater sense of belonging within society for disabled individuals (Aköğretmen & Orhan, 2020). The act of gaining employment empowers disabled individuals by fostering a sense of achievement, independence, and enhanced engagement with their surroundings. The involvement of disabled individuals in the business world has historical roots dating back to the early 20th century. During the period of the Industrial Revolution in Europe, there was an escalating demand for inexpensive labor. Despite having the capacity to work, disabled individuals were often marginalized and found themselves reliant on begging or familial support (Şen, 2018). As the 20th century progressed, numerous developed countries, including England, France, and Germany, began to establish educational and employment support systems specifically tailored for disabled individuals. However, despite years of dedicated efforts aimed at normalization and integration, challenges persist in enabling disabled individuals to access education and employment opportunities. According to the Organization for Economic Cooperation and Development (OECD), disabled individuals continue to face difficulties, with a reported twofold increased risk of unemployment and poverty compared to their non-disabled counterparts (Mori & Saka-

moto, 2018). Despite advancements, the journey toward equal opportunities for disabled individuals in the workforce remains an ongoing endeavor.

Following the Industrial Revolution, a profound transformation spanning various aspects of life, including social structures and economic dynamics, took place (Savas et al., 2021; Koc, 2021). While the Industrial Revolution brought about significant changes, it also introduced challenging working conditions, disregarded worker safety, health, and social security, and distanced the production system from humane values. As a consequence, the employment of women, young individuals, and children as low-cost labor not only perpetuated disabled conditions but also contributed to an upsurge in the overall number of disabled individuals within society. World Wars I and II further contributed to the number of disabled individuals, with the toll of these conflicts leaving many individuals living with disabilities. Throughout history, factors such as ongoing wars, an aging population, occupational accidents, occupational diseases, and health-related issues have all played pivotal roles in augmenting the disabled population. Presently, estimates indicate that over 1 billion individuals, accounting for around 15% of the global population, live with some form of disability (Şen, 2018). In Turkey, the prevalence of individuals with at least one disability within the population stands at 6.9%, with a slight disparity between genders at 5.9% for men and 7.9% for women from the Turkish Statistical Institute (TUIK) (TUIK, 2022). These statistics underscore the ongoing significance of the disabled population within contemporary societies.

As stated by the United Nations Committee on the Rights of Persons with Disabilities, individuals with disabilities possess the same rights and liberties as their non-disabled counterparts. In alignment with the broader human rights framework, states are obligated to implement all necessary measures to ensure that disabled individuals can fully and equally enjoy these rights and freedoms. However, this equitable outlook is often not fully translated into workforce participation (United Nations, 2022).

In the context of Turkey, the engagement of disabled individuals in the labor force remains notably low. This discrepancy is further exacerbated by the emergence of the COVID-19 pandemic after the year 2020, which led to a further decline in the employment rate of disabled individuals across various industries. Against this backdrop, the present study sets out to investigate the implications of employment policies and the economic landscape on physically disabled individuals, particularly within the sphere of silvicultural activities conducted by the private sector in Turkey during the COVID-19 pandemic. The aim is to provide insight into the challenges and opportunities faced by disabled individuals in the workforce during this critical period, thereby contributing to the limited body of research addressing the intersection of disability, employment policies, and economic dynamics, especially within the context of silvicultural activities in Turkey amidst the COVID-19 pandemic.

2 Material and method

This study delves into the employment status of physically disabled individuals participating in silvicultural activities carried out by the private sector from 2018 to 2021. The investigation specifically focuses on the provinces of Bartın, Zonguldak, Kastamonu, Karabük, Bolu, Sinop, and Düzce within the Western Black Sea region. This region is characterized by a

substantial population of disabled individuals and a notable prevalence of forestry-related endeavors. As a key region in Turkey with one of the highest rates of disabled population, it offers a unique context to examine the interaction between employment and disability. The geographical distribution of disabled population throughout Turkey is visually depicted in Fig. 1, offering a visual representation of the concentration of disabled individuals in different areas.

The data employed in this study were sourced from multiple reliable authorities, including the Ministry of Labor and Social Security, the Turkish Statistical Institute (TUIK), the Turkish Employment Agency (ISKUR), the General Directorate of Forestry, the Secretariat of the Union of Forest Cooperatives, the Secretariat of the Chamber of Forest Engineers, as well as specific private forestry companies operational within the Western Black Sea region. Additionally, the study encompassed the accounting records of 126 worker positions engaged in activities within the Western Black Sea region. By drawing on these diverse data sources, the study aimed to comprehensively capture and analyze the employment dynamics of physically disabled individuals within the context of silvicultural activities in this region.

3 Results and discussions

The distribution of physically disabled individuals working in silvicultural activities by private forestry companies in the Western Black Sea region during the pandemic is presented in Fig. 2.

As illustrated in Fig. 2, the employment of physically disabled individuals within private forestry companies engaged in silvicultural activities exhibited a consistent annual increase across all provinces since the year 2018. Notably, the graph reveals that Sinop province experienced the most substantial rise in employment figures. These increases were not confined to specific provinces or years, as evident from the upward trend across all provinces during each year. The data collectively indicates that there was a minimum increase of 210% in the number of physically disabled individuals employed in silvicultural roles by private forestry companies between 2018 and 2021. This growth signifies that the count

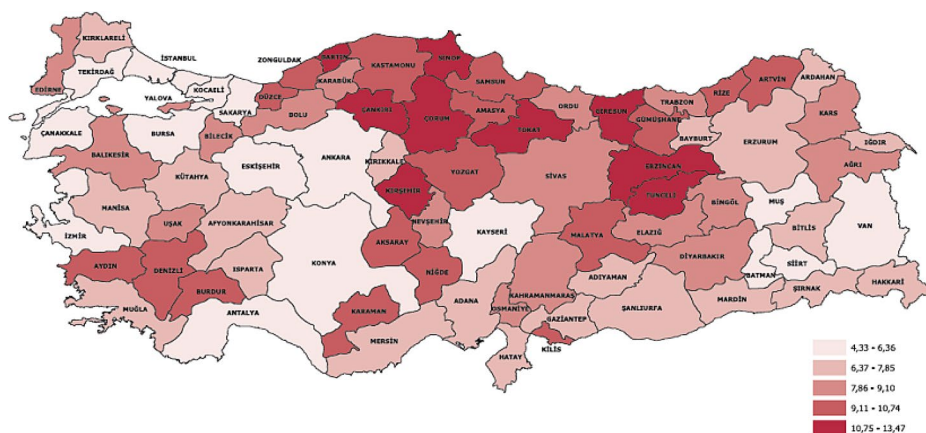


Fig. 1 Proportion of persons with at least one disability (%) (TUIK, 2022)

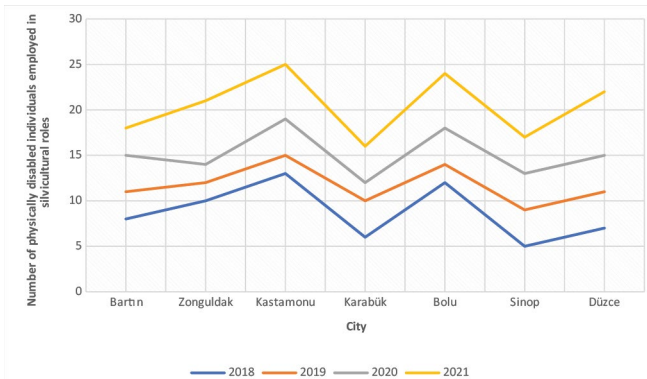
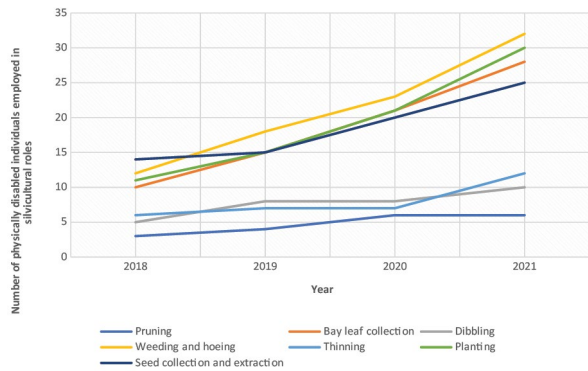


Fig. 2 Distribution of physically disabled individuals by provinces

Fig. 3 The types of silvicultural works, in which physically disabled individuals were employed



of physically disabled individuals participating in silvicultural applications within private forestry companies more than doubled during this period.

Delving into the provincial distribution, Kastamonu boasted the highest employment of disabled individuals, followed by Bolu and Zonguldak. The spectrum of silvicultural tasks undertaken by physically disabled individuals during the pandemic is showcased in Fig. 3, providing insight into the range of activities within which they were involved during this critical period.

Upon analyzing the diverse categories of silvicultural tasks in which physically disabled individuals were engaged, a discernible pattern emerges: the employment of disabled individuals showed a consistent increase across all types of silvicultural works each year from 2018 to 2021. This trend reinforces the notion of expanded opportunities for disabled individuals across various aspects of silvicultural activities.

During this four-year span, the highest frequency of disabled individual employment was observed in weeding and hoeing activities, followed closely by planting and bay leaf collection. Upon investigating the evolution of disabled individual employment in these specific roles over the period spanning from 2018 to 2021, notable proportional increases can be identified. These increases were particularly pronounced in the context of collecting bay leaves, planting, and weeding and hoeing, respectively.

Fig. 4 The distribution of disabled individuals by gender

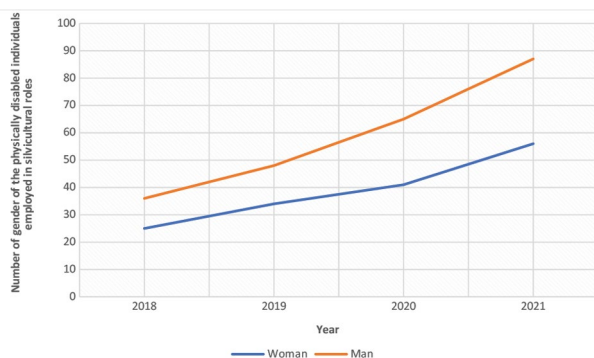
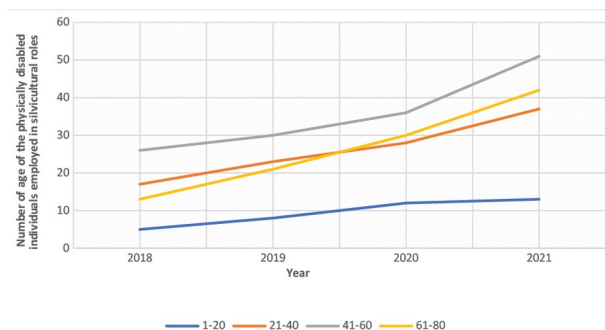


Fig. 5 The distribution of disabled individuals by age



Shifting focus to the distribution of disabled individuals by gender, Fig. 4 offers a visual representation of this distribution, shedding light on the gender dynamics within the context of employment among disabled individuals in the silvicultural sector.

This study revealed a distinct gender-based discrepancy in employment patterns. Specifically, male employment levels were observed to be notably higher, constituting a significant majority. In terms of female representation, women comprised approximately 40% of the total employment of disabled individuals within the scope of this study.

By examining the graph, it becomes evident that the employment of disabled individuals displayed a consistent annual increase throughout the period spanning from 2018 to 2021. Remarkably, the most pronounced increase occurred in the year 2021, signifying a notable surge in the engagement of disabled individuals in silvicultural activities within the Western Black Sea region.

Turning attention to the age distribution of disabled individuals, Fig. 5 offers a graphical depiction of how these individuals are distributed across various age groups, providing insight into the demographic composition within this context.

Analyzing the distribution of employed disabled individuals in relation to their age categories, a distinctive pattern emerges. The majority of employed disabled individuals fell within the age range of 41 to 60 years, while the employment rate was notably lower among those below the age of 20 years. Furthermore, the data showcases that employment rates increased across all age groups between 2018 and 2021. Specifically, the age category of ≥ 61 years experienced the most pronounced proportional increase, indicating a notable

Fig. 6 The educational status of physically disabled individuals

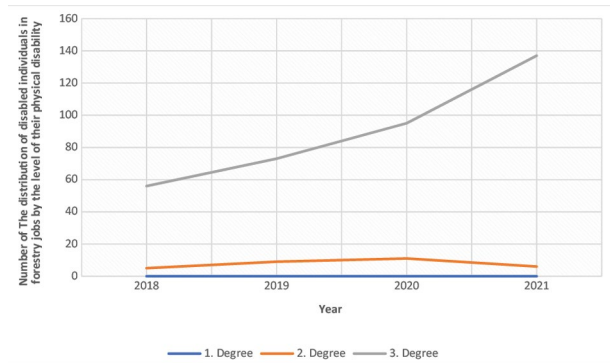
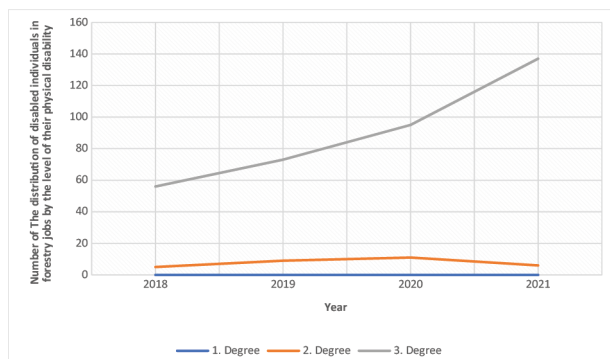


Fig. 7 The distribution of disabled individuals in forestry jobs by the level of their physical disability



surge in employment within this group. Conversely, the age group of 41–60 years displayed the lowest proportional increase during the same period.

The educational status of physically disabled individuals is elucidated in Fig. 6, which visually represents the educational attainment of disabled individuals participating in silvicultural activities within the Western Black Sea region.

The outcomes of the study revealed a significant proportion of employed disabled individuals possessed educational backgrounds ranging from elementary to secondary school levels. An intriguing observation from the graph is the higher rate of illiterate individuals compared to those with high school education. Conversely, the representation of vocational school graduates among the employed disabled individuals was notably low. When examining the numerical data presented in the graph, a clear upward trend is evident: the number of disabled individuals engaged in employment increased across all educational groups between the years 2018 and 2021. Notably, the most substantial increase was observed among secondary school graduates.

Shifting the focus to the distribution of disabled individuals in forestry roles based on the extent of their physical disabilities, Fig. 7 provides an illustrative presentation of this distribution, shedding light on the employment dynamics in the forestry sector concerning the varying degrees of physical disability among these individuals.

The graph visually illustrates the distribution of physically disabled individuals across various employment capacity groups within forestry jobs. Notably, the 3rd group, characterized by a 40–60% working capacity reduction, exhibited the highest employment rate, with

figures increasing from 56 individuals in 2018 to 137 in 2021. In contrast, the 2nd group (60–80% working capacity reduction) showed variable trends, reaching 11 employed individuals in 2020 before declining to 6 in 2021. Those with over 80% capacity reduction were not employed. Shifting focus to income per capita, Fig. 8 portrays the distribution over time, offering insights into the financial dynamics experienced by these individuals.

Given the values presented in table, it can be seen that the income per capita of physically disabled individuals increased in TL between the years 2018 and 2021 but, considering the USD, it increased in 2019 but decreased in other years. The loss exceeded 30% in 2021.

This study examined the employment status of physically disabled individuals engaged in silvicultural activities within the private sector between 2018 and 2021. The findings revealed a consistent annual increase in the number of physically disabled individuals employed in forestry jobs during this period. Among the provinces studied, Kastamonu, Bolu, and Zonguldak emerged as the regions with the highest employment rates for disabled individuals. The lowest employment rate was obtained in Karabük, Sinop and Bartın. The primary roles with the highest worker employment were weeding and hoeing, as well as planting. The data suggests a notably high employment rate in tasks like sapling nursing and planting, particularly in Kastamonu, Bolu, and Zonguldak. This heightened employment rate in the mentioned provinces is attributable to their substantial engagement in these tasks, contributing to a more significant employment rate for disabled individuals in these regions compared to others.

The study results determined that the income of disabled individuals decreased in USD during the Covid-19 pandemic, and this decrease exceeded 30% in 2021. The reason for this situation is that disabled people are paid on a daily basis for the jobs they work in, and they are not paid for the periods they are not working. Forestry activities are generally interconnected. For example, when afforestation activities are planned, work such as nursery production, weeding, hoeing and tubing increases. However, since these works have generally decreased during the Covid-19 pandemic period, the number of days worked by disabled individuals and therefore their income has decreased. In addition, curfews implemented during the Covid-19 period, restrictions on working hours, and self-isolation of disabled individuals due to health problems have also been effective in their not working and decreasing their income. Additionally, the depreciation of TL against USD was also effective in this process.

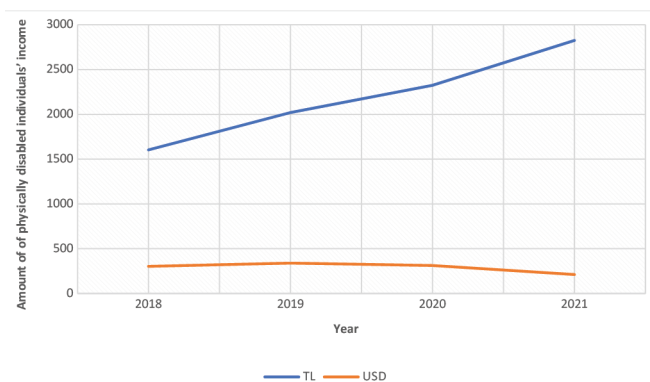


Fig. 8 The distribution of physically disabled individuals' income per capita by years

Throughout the study, it became evident that overall, male employment held a higher prevalence. In terms of disabled individuals' employment, females constituted approximately 40% of the workforce. The main reason for the higher male employment is that most of the jobs involved are manual labor in open field conditions and are therefore more suitable for male employees. Employment of men and women has continuously increased between 2018 and 2021. However, while the proportion of women among employees was higher in 2018, this rate began to increase in favor of men, and especially in 2020, the gap between the male and female ratio widened.

Analyzing the distribution of employment by age groups, it was observed that the largest group of disabled individuals employed fell within the 41 to 60 age bracket. However, the most substantial proportional increase was observed among individuals aged 61 and older. This trend appears to be closely tied to economic conditions. The pronounced proportional rise in the 61 and older age group aligns with the hypothesis that retirees are re-entering the workforce due to economic challenges, especially given that the jobs studied are characterized as seasonal or temporary in nature. Furthermore, the decrease in earnings for individuals who were earning above the minimum wage, measured in USD, underscores the diminishing purchasing power they experienced, leading to economic hardships.

The study revealed that a significant proportion of employed disabled individuals had attained elementary or secondary school education, while the portion of illiterate individuals exceeded that of high school graduates. This observation implies that these jobs did not necessitate specific knowledge or educational background, and their low income further supports this assessment. These positions appear to be chosen as a last resort due to their low income potential and lack of job stability. Notably, the disabled group with the highest employment rate in forestry jobs consisted of individuals with a 40–60% loss of working capacity. Conversely, disabled individuals with a 80% or higher loss of working capacity were not employed in forestry jobs. This can be attributed to the physically demanding nature of silvicultural work, which relies on physical strength. Consequently, individuals with significant physical disabilities encounter challenges in performing silvicultural tasks, and for many job roles, their participation is nearly impossible.

In summary, silvicultural jobs are physically demanding roles that do not require specialized qualifications, offer limited job continuity, and provide low income. Consequently, the educational attainment of individuals in these positions tends to be quite low. The findings from this study demonstrate a consistent increase in the employment of physically disabled individuals in silvicultural jobs between 2018 and 2021. While this growth in employment is a positive development, the quality of these jobs raises concerns. Physically disabled individuals are often forced to work in forestry jobs that are considered a last resort, partly due to the economic challenges imposed by the COVID-19 pandemic. This situation underscores the prevailing inequalities and discrimination that disabled individuals face, further exacerbated by the pandemic, leading to feelings of exclusion and marginalization. As reported by Akman (2021), disabled individuals often encounter low-wage, low-status jobs that are not widely preferred, fail to bring job satisfaction, and are inadequate in terms of remuneration. The pandemic has further exposed these disparities, intensifying the exclusion and feelings of discrimination among disabled individuals (Rotarou, 2021).

The World Health Organization (WHO) has estimated that out of the 1.17 billion disabled individuals worldwide, approximately 740 million are of working age, and 2–4% of them face functional difficulties. These individuals make up around 15% of the population

in most countries, and in developing nations, the unemployment rate among working-age disabled individuals is notably high, ranging from 80 to 90% (Ghaneh-Ezabadi et al., 2021). In Europe, about 17.6% of the population aged 15 years and older live with varying degrees of disabilities. It has been emphasized that a significant majority of disabled individuals under such circumstances are unable to enter the workforce due to societal and environmental barriers (Toyoğlu, 2020). In Turkey, the employment rate among disabled individuals remains far below what it should be. According to the data from 2021, the overall labor force participation rate is 50.2%, with 69.1% for men and 31.7% for women. However, among disabled individuals, the labor force participation rate drops to 22.1%, with 35.4% for men and a mere 12.7% for women (TUIK, 2022).

Previous research has consistently indicated that disabled individuals often grapple with elevated levels of poverty and unemployment (Bredgaard & Salado-Rasmussen, 2021). Within the European Union, the restricted access disabled individuals have to employment opportunities has resulted in a poverty rate surpassing 70% among this demographic (Toyoğlu, 2020). Reports emphasize the growing challenge of sustaining disabled individuals solely through social benefits, advocating for their active engagement in the production process (Girlevičienė & Kvietkauskienė, 2021). With the daily increasing number of disabled individuals who are consumers but not active participants in production, there's a potential risk of upsetting the balance between population and resources. To ensure optimal resource utilization, it becomes imperative for disabled individuals to participate in the production process (Alvar, 2014).

Nevertheless, considerable challenges arise when attempting to secure employment and foster participation in production for disabled individuals whose physical capabilities do not align with those of their able-bodied counterparts. Factors such as their reduced work capacity and limited vocational knowledge due to educational gaps, coupled with societal attitudes and employer reservations, present hurdles to the employment of disabled individuals (Karim et al., 2021; Shankar et al., 2021; Hashim et al., 2021). However, the paradigm shift brought about by the social model of disability has ushered in a new focus on education, employment, accessibility, and inclusivity (Ölmezoglu, 2015). Furthermore, legal regulations have compelled the employment of disabled individuals, echoing similar efforts in numerous other countries (Akögretmen & Orhan, 2020). Nonetheless, data from TUIK indicates that while government employment of disabled individuals slightly increased between 2018 and 2021, the private sector witnessed a significant decline since 2019 (TUIK, 2022). The impact of COVID-19 on this decline is evident. Previous research also highlights the pandemic's adverse effects on employment and the economic, social, and psychological well-being of employees (Sheraton et al., 2020; Walton et al., 2020; Haleem et al., 2020; Webb et al., 2020; Padhan & Prabheesh, 2021).

4 Conclusions

Disabled individuals form an integral part of society, and the growing number of disabled individuals underscores the importance of their meaningful participation in the realm of production. Past research has consistently highlighted that inadequate education constitutes a significant barrier to their engagement in productive activities. Similarly, in the context of the current study, the rise in disabled individuals employed in forestry jobs could par-

tially be attributed to the fact that these roles do not demand highly skilled workers. Consequently, to facilitate the integration of disabled individuals into emerging fields of work, addressing the educational disparities becomes paramount. By focusing on rectifying the educational gaps, disabled individuals can be better equipped to transition into diverse work environments, thereby enhancing their chances of contributing effectively and inclusively to the workforce. Indeed, employing disabled individuals as forest workers poses significant challenges due to the physical demands inherent in such roles. However, it's important to recognize that the field of forestry encompasses a diverse array of positions, some of which could be well-suited for disabled individuals. While traditional forest labor might be physically strenuous, there are numerous office-based roles within the forestry sector that could provide valuable employment opportunities for disabled individuals. For example, visually impaired individuals could excel as telephone operators, while those with mobility challenges might find a fitting role within the accounting department.

Considering the potential for skill adaptation and training, it's conceivable that walking disabled individuals could receive specialized training to become adept construction machine operators. Additionally, other physically disabled individuals might be well-suited for roles involving recording and sales within nurseries. By tailoring training and employment opportunities to the specific abilities and capacities of disabled individuals, the forestry sector can tap into a diverse and valuable workforce. This approach not only promotes inclusivity but also enhances the overall workforce by leveraging the unique skills and talents of disabled individuals in positions where their contributions can truly shine.

The study results show that the amount of employment in forestry jobs has increased, but the amount of income has decreased. The main reason for this situation is the decrease in the total number of days worked. In Turkey, it is a legal obligation to employ a certain amount of disabled people, and therefore many disabled people are employed in simple and low-income jobs in order to meet the legal obligation. However, disabled individuals need to be employed in higher income jobs by increasing their skills through various trainings. On the other hand, the current situation is based on employment only to fulfill legal obligations, which causes the economic contributions of disabled people to remain far from the desired level. The study results reveal that male employment is higher and the female employment rate is decreasing proportionally. The main reason for this situation is that silvicultural processes are mostly done in open areas, do not require any extra knowledge and skills, and are manual labor-based, and therefore men are preferred. However, women's employment can be created in easier but more effective business lines in forestry practices. For example, it is recommended that women be trained and employed in areas such as secondary forest products, growing medicinal and aromatic plant seedlings, ornamental plant cultivation, and mushroom cultivation.

It is seen that the education level of disabled individuals working in forestry practices is generally low, but in recent years there has been an increase in the employment of primary school and secondary school graduates. The reason for this situation is that 12-year education has recently become compulsory in Turkey. However, although the general level of education seems to have increased, it is seen that individuals who do not develop their basic and specific knowledge and skills prefer the forestry sector, or rather are forced to work in the forestry sector. The most important indicator of this is that there is no increase in the employment of college and university graduates in the sector. Because individuals who can

improve their knowledge and skills turn to other sectors with higher income levels and permanent employment opportunities.

In order to provide more inclusive employment opportunities for disabled individuals in the forestry sector, disabled individuals can be employed in areas such as planning, monitoring and control that do not require working in open field conditions. However, in order to be employed in these jobs, individuals must first be given specific training and their knowledge and skills in this field must be improved. For this purpose, it is recommended to train disabled individuals who are knowledgeable in these areas through courses and trainings to be opened before they are employed.

Acknowledgements For their contributions to the present study, we would like to thank to General Directorate of Forestry, Turkish Employment Agency (ISKUR), Secretary of the Union of Forest Cooperatives, Secretary of the Chamber of Forest Engineers, Turkish Statistical Institute (TUIK) and specific private forestry companies operating in the Western Black Sea region.

Author contributions Halil, Tugrul, Hakan, Berkant, Mehmet designed the study and performed the experiments; and Not applicable performed the experiments, analyzed the data, and wrote the manuscript.

Funding Open access funding provided by the Scientific and Technological Research Council of Türkiye (TÜBİTAK).

Data availability The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. All data are given in manuscript.

Code availability Not applicable.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Conflict of interest All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Akman, A. C. (2021). Problems that employers face in employment of people with disabilities in Turkey and suggestions of solution: The case of Yalova. Yalova University Institute of Graduate Studies Doctoral Thesis. 157 pages, Yalova, Turkey.

- Akögretmen, M., & Orhan, S. (2020). Disabled entrepreneurship as an alternative to disabled employment. *Bilgi Journal of Social Sciences*, 22(2), 236–256.
- Alvar, B. (2014). Handicapped employment and its problems in Isparta. Süleyman Demirel University, Institute of Social Sciences, Department of Sociology, Masters' Thesis, 125 pages, Isparta.
- Anil, A. (2019). Examining attitudes of employers towards the disabled and opinions of employees toward their working area. Necmettin Erbakan University, Education Institute, MsC Thesis, 109 pages, Konya.
- Bredgaard, T., & Salado-Rasmussen, J. (2021). Attitudes and behavior of employers to recruiting persons with disabilities. *Alter*, 15(1), 61–70.
- Chajduga, T., & Ingaldi, M. (2021). Hiring disable people to avoid staff turnover and enhance sustainability of production. *Sustainability*, 13(19), 10577.
- Genç, Y., & Çat (2013). Employment of disabled people and social inclusion relationship. *Journal of Academic Inquiries*, 8(1), 363–393.
- Ghaneh-Ezabadi, S., Nezamabadi-Farahani, L., Abdi, K., Saadat, M., & Zakerian, S. A. (2021). The impact of employment status and occupation type on occupational stress and general health of physically disabled employees in vocational centers of the state welfare organization of Tehran: A cross-sectional study. *Archives of Rehabilitation*, 22(1), 66–85.
- Girleicienė, L., & Kvietkauskienė, A. (2021). Evaluation of state aid and its created value for disabled people in Lithuania. *Journal of Business Economics and Management*, 22(4), 905–922.
- Haleem, A., Javaid, M., & Vaishya, R. (2020). Effects of COVID-19 pandemic in daily life. *Current Medicine Research and Practice*, 10(2), 78.
- Hashim, M., Nawaz, Y., Shabbir, S. W., & ul Haq, I. (2021). Social and marital life of disable baggers: A case study of Multan. *Annals of Social Sciences and Perspective*, 2(1), 35–49.
- Karim, R. A., Shakil, A. F., Ali, S. I., & Thallo, N. P. (2021). Occupational therapy as a strategic use of strength for foster learning of children due to mental health problems in early years at Karachi, Pakistan. *Multicultural Education*, 7(10), 1–10.
- Koc, I. (2021). Using Cedrus Atlantica's annual rings as a biomonitor in observing the changes of Ni and Co concentrations in the atmosphere. *Environmental Science and Pollution Research*, 28(27), 35880–35886.
- Kocabaş, Ç. (2018). *Employment of disabled civil servants in Turkey. Supported employment of persons with disabilities*. Academic Books.
- Mori, Y., & Sakamoto, N. (2018). Economic consequences of employment quota system for disabled people: Evidence from a regression discontinuity design in Japan. *Journal of the Japanese and International Economies*, 48, 1–14.
- Ölmezoğlu, N. İ. (2015). People with disabilities at work: Basis of disability employment labour supply Gümüşhane City way an investigation Gazi University Department of Institute of Social Sciences MsC Thesis. 117 pages, Ankara, Turkey.
- Padhan, R., & Prabheesh, K. P. (2021). The economics of COVID-19 pandemic: A survey. *Economic Analysis and Policy*, 70, 220–237.
- Rotarou, E. S., Sakellariou, D., Kakoullis, E. J., & Warren, N. (2021). Disabled people in the time of COVID-19: Identifying needs, promoting inclusivity. *Journal of Global Health*, 11, 1–12. <https://doi.org/10.7189/jogh.11.03007>.
- Savas, D. S., Sevik, H., Isinkaralar, K., Turkyilmaz, A., & Cetin, M. (2021). The potential of using *Cedrus atlantica* as a biomonitor in the concentrations of Cr and Mn. *Environmental Science and Pollution Research*, 28(39), 55446–55453 (2021). <https://doi.org/10.1007/s11356-021-14826-1>.
- Şen, M. (2018). Employment policies for disabled people in Turkey: Problems and suggestions. *Journal of Social Security*, 8(2), 129–152.
- Shankar, J., Li, L., & Tan, S. (2021). Work experiences and challenges to Employment sustainability for people with Mental illness in supported Employment Programs. *SAGE Open*, 11(3), 21582440211033558.
- Sheraton, M., Deo, N., Dutt, T., Surani, S., Hall-Flavin, D., & Kashyap, R. (2020). Psychological effects of the COVID 19 pandemic on healthcare workers globally: A systematic review. *Psychiatry Research*, 292, 113360.
- Topgöl, S., & Yıldırım, M. (2018). Attitude and perceptions of employers to disabilities' employment: Tokat sample. *Journal of Human Sciences*, 15(2), 855–869. <https://doi.org/10.14687/jhs.v15i2.4945>.
- Toyoğlu, A. (2020). Occupational Health and Safety Approach for Disabled Employment in the European Union and Turkey. *Tarsus University Graduate Education Institute, MsC Thesis*, 138pages–MersinTurkey.
- TUIK (2022). Turkish Statistical Institute, access on 12/03/2023, from www.tuik.gov.tr.
- United Nations (2022). United Nations Convention on the Rights of Persons with Disabilities (CRPD), UN Department of Economic and Social Affairs Disability (access on 08/03/2024), from <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-Persons-with-disabilities.html>.
- Walton, M., Murray, E., & Christian, M. D. (2020). Mental health care for medical staff and affiliated health-care workers during the COVID-19 pandemic. *European Heart Journal: Acute Cardiovascular Care*, 9(3), 241–247.

- Webb, A., McQuaid, R., & Rand, S. (2020). Employment in the informal economy: Implications of the COVID-19 pandemic. *International Journal of Sociology and Social Policy*, 40(9), 1005–1019.
- Wojnarowska, A. (2021). The employment policy and vocational activity support system for people with intellectual disabilities in Poland. *Alter*, 15(4), 354–362.
- Yurttakal, E. (2019). Employment Rating Physically Disabled in Turkey: Career Professions. Ankara Haci Bayram Veli University Graduate Education Institute MsC Thesis. 154 pages, Ankara.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.