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İmalat
Sanayinde
Kadınların
Güçlenmesine
Yönelik Model
Geliştirme Projesi

Developing
Women Empowerment Models
in Manufacturing Industry Project

EMPO *WE* RED
TO *Change*: Women Breaking Barriers
in Manufacturing Industry

NEEDS ANALYSIS REPORT

September 2025



REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY



The “Developing Women Empowerment Models in Manufacturing Industry Project” is implemented by the Turkish Confederation of Employer Associations (TİSK) and the United Nations Development Programme (UNDP), in cooperation with the Ministry of Industry and Technology of the Republic of Türkiye, and is fully funded by the European Union.

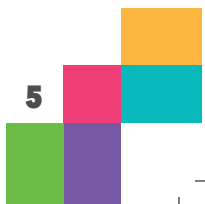
This document has been prepared to summarize the key findings of the needs assessment report developed within the scope of the Developing Women Empowerment Models in Manufacturing Industry Project. The needs analysis study examined in detail the factors influencing the participation of women in the workforce and education, the barriers to their participation in the manufacturing industry, as well as the current state of the manufacturing industry sectors. A mixed-method approach was adopted for the analysis, making use of primary and secondary data from various sources and different methodologies to provide a comprehensive understanding of the underlying issues.

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LIST OF ABBREVIATIONS

AI	Artificial intelligence
BIST	Borsa İstanbul
BRICS	Brazil, Russia, India, China, South Africa
CAGR	Compound annual growth rate
CBAM	Carbon Border Adjustment Mechanism
CBİKO	Presidency of the Republic of Türkiye Human Resources Office
CEO	Chief executive officer
CMB	Capital Markets Board of Türkiye
CRM	Customer Relationship Management
CSR	Corporate Social Responsibility
DEI	Diversity, Equality and Inclusion
EDGE	Economic Dividends for Gender Equality
ERP	Enterprise resource planning
ESG	Environmental, social and governance
ETF	Exchange-traded funds
EU	European Union
EUA	European University Association
FEM	Equal Opportunity Model
FLFP	Female labour force participation rate
GBS	Entrepreneurial Information System
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
GEI	Gender Equality Index
GPI	Gender Parity Index
GRI	Global Reporting Initiative
GVC	Global value chains
ICT	Information and communication technology
ILO	International Labour Organization
ILOStat	ILO Department of Statistics
IoT	Internet of Things
ISCO	International Standard Classification of Occupations
ISI	Import Substitution Industrialisation
ISIC	International Standard Industrial Classification
KAGİDER	Women Entrepreneurs Association of Türkiye



KAİSDER	Association of Women Employers and Industrialists
LF	Labour force
MENA	Middle East and North Africa
MÜSİAD	Independent Industrialists and Businessmen Association
NEET	Not in employment, education or training
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
OIZ	Organised industrial zone
PAL	Policy Analytics Lab
R&D	Research and development
SGK	Social Security Institution
STEM	Science, technology, engineering, and mathematics
TEA	Total Early-Stage Entrepreneurial Activity
TOBB	Union of Chambers and Commodity Exchanges of Türkiye
TurkStat	Turkish Statistical Institute
TÜSİAD	Turkish Industry and Business Association
UIS	UNESCO Institute for Statistics
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UNIDO	United Nations Industrial Development Organization
USD	United States dollar
USİKAD	International Industrialist Businesswomen Association
WBG	World Bank Group
WDI	World Development Indicators
WE	Women's Empowerment
WEP	Women's Empowerment Principle
WFID	Women's Financial Inclusion Data
YEYKAD	Green Collar Women Association
YÖK	Higher Education Council

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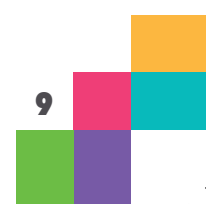
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1. OVERVIEW



1. OVERVIEW

This section presents the rationale and methodology of the Needs Analysis for the “Developing Women Empowerment Models in the Manufacturing Industry” project.

It begins by providing an outline of the methodological framework of the needs assessment, which is based on desk research, in-depth interviews, large-scale surveys and focus group discussions conducted in nine pilot provinces, representing a substantial share of Türkiye’s manufacturing sector. Following this methodological overview, Türkiye’s position within the context of global manufacturing trends is identified, highlighting the intersection of the digital transformation, the green transition and women’s empowerment as the key drivers shaping the future of industrial development.

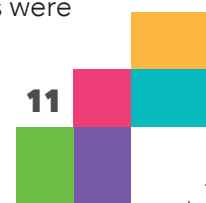
1.1. Needs Analysis Study: Method and Approach

This study was conducted as part of the Developing Women’s Empowerment Models in the Manufacturing Industry Project under the need analysis component.

The needs analysis examined in detail the factors influencing the participation of women in the workforce and education, the barriers to their participation in the manufacturing sector, as well as the current state of the manufacturing sector. A mixed-method approach was adopted for the analysis, making use of data from various sources and different methodologies to provide a comprehensive understanding of the underlying issues.

The study involved desk research, in-depth interviews and survey studies, and a policy framework was subsequently developed based on the findings.

- » **Desk Research:** The desk research involved primarily reviews of literature and analyses of such open data sources as TurkStat, World Bank, Eurostat, ILO and SGK. The desk research continued throughout the study, and the obtained findings provided valuable insights into various aspects of the issue.
- » **In-Depth Interviews:** To test the initial hypotheses derived from desk research and to inform the survey design, 24 in-depth interviews were conducted with companies and such regional stakeholders as development agencies, educational institutions, and chambers of industry in the pilot provinces (İstanbul, Ankara, İzmir, Bursa, Kocaeli, Tekirdağ, Manisa, Adana and Gaziantep).
- » **Survey Studies:** To address both the supply- and demand-side issues in the labour market, two distinct surveys were carried out – one for companies and one for early-career STEM talents. Some 2,000 companies took part in the company survey, which was used to garner data on their approaches and practices related to the digital transformation, green transition and Women’s Empowerment (WE). A Computer-Assisted Telephone Interviewing (CATI) method was adopted for the survey. The survey of early-career STEM talents, on the other hand, targeted recent STEM graduates and those close to graduating, and explored their perspectives on working life and the manufacturing sector. The survey was conducted online with 800 participants, again using the Computer-Assisted Web Interviewing (CAWI) method. Details of the survey samples are presented in Box 1. To expand the scope of the findings, an additional 200 in-depth surveys were

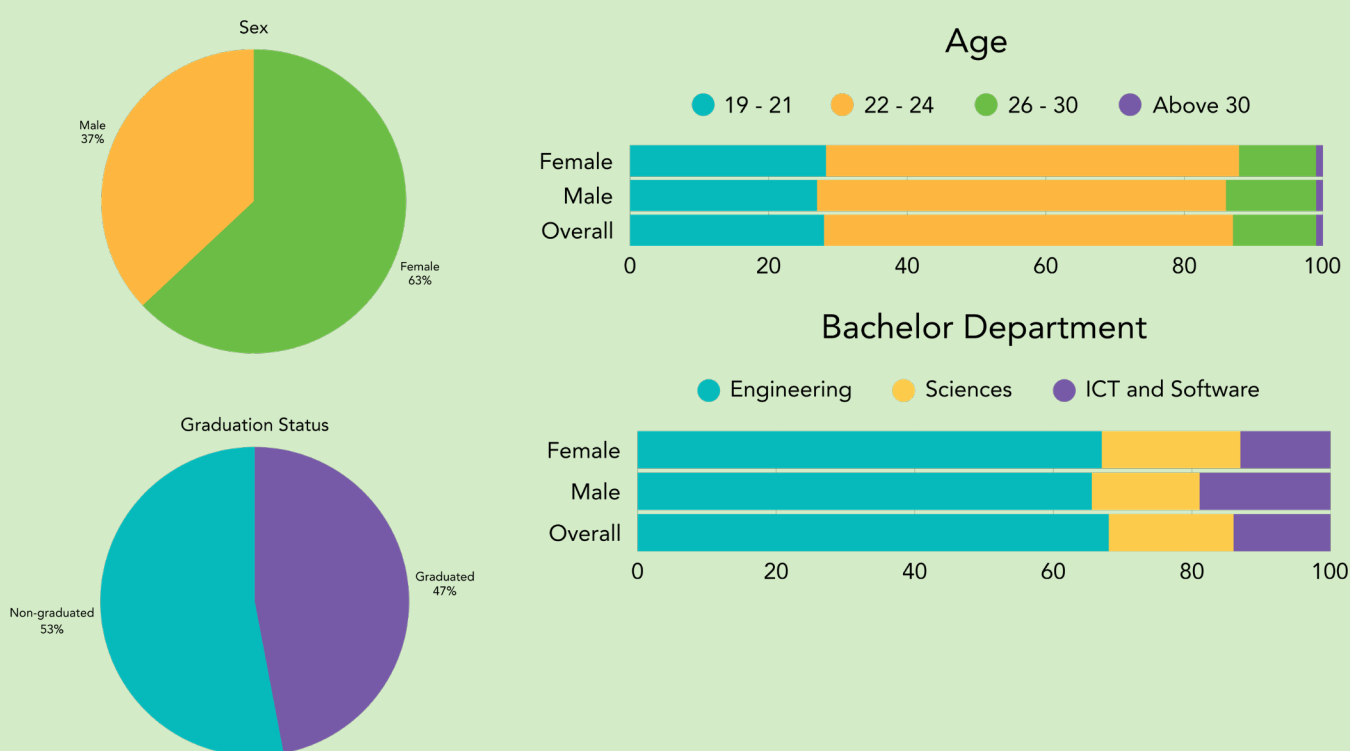


conducted with actors and interface organisations from the pilot provinces within the ecosystem. The questions and scope of the surveys were designed by the project team, and the interviews were carried out by XSights, a research organisation.

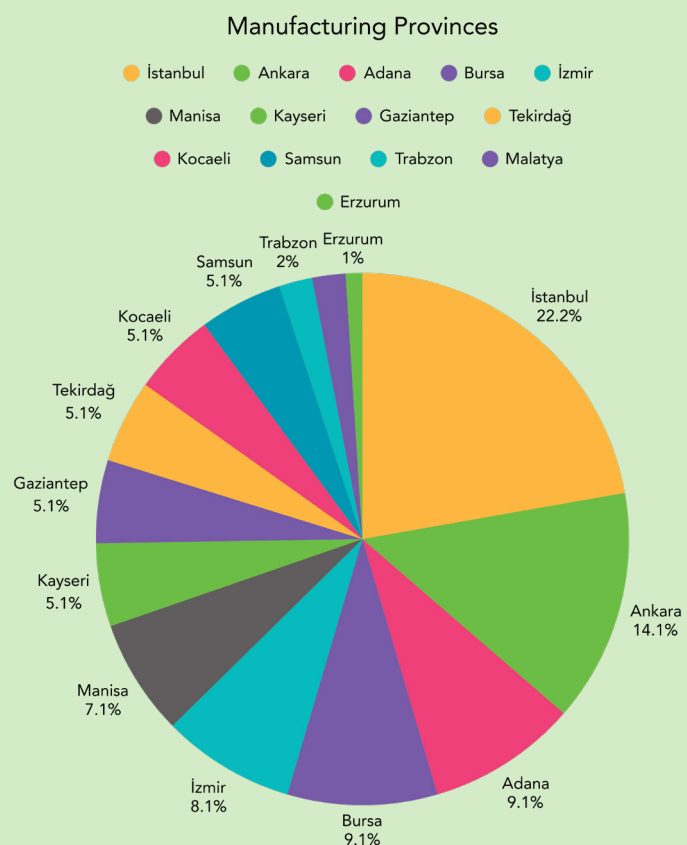
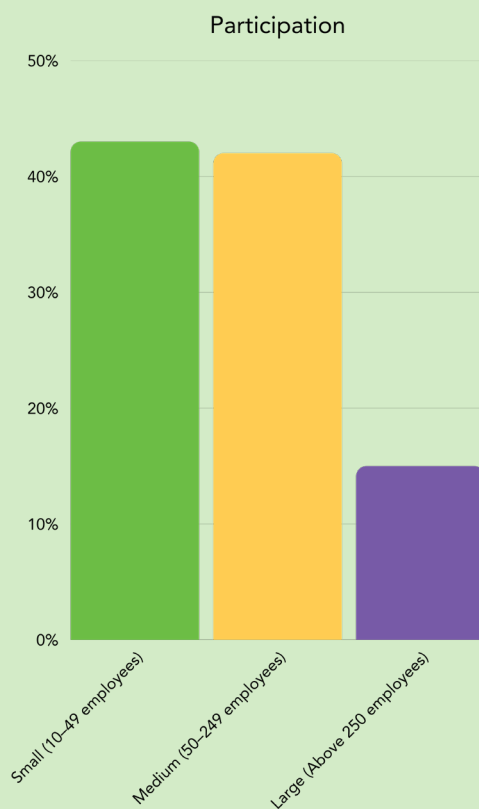
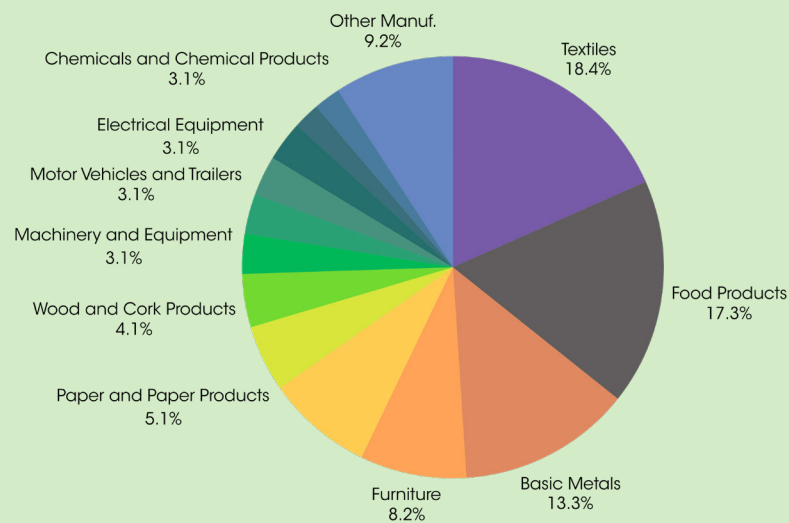
- » **Focus Group Meetings:** As part of the needs assessment study, focus group meetings were held to share and thoroughly discuss the findings of the research and draft policy recommendations. The meetings brought together public sector stakeholders (such as representatives from the Ministry of Industry and Technology, İŞKUR, the Ministry of National Education and Regional Development Agencies), as well as civil society and private sector stakeholders (including trade unions, chambers of industry and company representatives, Organised Industrial Zone administrators and academicians). The focus group meetings were conducted in the nine pilot provinces of the project, with those in Ankara, İstanbul, İzmir, Kocaeli, and Manisa held face-to-face, and those in Bursa, Gaziantep, Adana and Tekirdağ online. The insights and feedback garnered during these meetings were utilised to classify and refine the findings and policy recommendations.

Box 1: Survey Sample Details

Included in the early-career STEM talent survey were **856 participants**, of whom 63 percent were women and 37 percent were men. To facilitate a more detailed analysis of the female perspectives, the survey intentionally included a higher proportion of female respondents. Regarding age distribution, 28 percent were aged 12–21 years, while 59 percent were aged 22–24 years, with a significant majority (87%) falling within the 19–24 years age range. In terms of educational background, 47 percent of respondents were recent graduates and 53 percent were senior-year students preparing to graduate in the near future. Among the respondents, 68 percent were enrolled in engineering and related fields, 18 percent in basic sciences and 14 percent in ICT and software disciplines.



The WE company survey included **2,000 companies**, of which 43 percent were small-sized, 42 percent were medium-sized and 15 percent were large-sized. All participating companies were operating within the **manufacturing sector**, with **textiles (18%)**, **food (17%)** and **basic metals (13%)** standing out as the leading industries. Other notable sectors included **furniture, plastic and paper product manufacturers**, and those manufacturing **machinery and equipment**. Geographically, 22 percent of the companies were based in İstanbul, followed by 14 percent in Ankara, 9 percent in Adana and Bursa, 8 percent in İzmir and 7 percent in Manisa. Regarding the respondent profiles, 93 percent of the participants had been with their companies for more than 5 years, and 59 percent were women. Additionally, 64 percent held senior management positions. The functional distribution of respondents included 38 percent in finance/accounting, 36 percent in production/operations/R&D, 14 percent in senior management, 6 percent in human resources, and 5 percent in sales and marketing.



The “Developing Women Empowerment Models in Manufacturing Industry” Project is being implemented in nine pilot provinces that account for 70 percent of Türkiye’s manufacturing value-added.

The project is being conducted in İstanbul, Ankara, İzmir, Bursa, Kocaeli, Tekirdağ, Manisa, Adana and Gaziantep. In 2022, these pilot cities represented 70 percent of the total manufacturing value-added, 63 percent of total GDP, 58 percent of total formal employment and 45 percent of the total population (Table 1). This indicates that the models developed based on regional data can be considered highly applicable to Türkiye as a whole. Achieving a transformation in these provinces has the potential to drive a comprehensive shift in Türkiye’s industrial employment landscape.

Table 1: The Share of Pilot Provinces in Türkiye’s Economy

	Total GDP Share		Share of Population		Industrial GDP Share		Share of Compulsory Insured	
Years	2010	2022	2010	2022	2010	2022	2010	2022
İstanbul	30%	32%	23%	19%	29%	26%	29%	28%
Ankara	10%	10%	8%	7%	6%	9%	8%	8%
İzmir	6%	6%	6%	5%	8%	8%	7%	6%
Bursa	4%	4%	4%	4%	8%	7%	4%	5%
Kocaeli	3%	4%	3%	2%	8%	7%	2%	4%
Tekirdağ	1%	2%	1%	1%	4%	4%	1%	2%
Manisa	2%	2%	2%	2%	2%	3%	2%	2%
Adana	2%	2%	3%	3%	2%	2%	2%	2%
Gaziantep	1%	2%	3%	3%	2%	4%	2%	2%
Total of pilot cities	59%	63%	53%	45%	69%	70%	57%	58%

Source: TurkStat, SGK, PAL calculations

1.2. Global Manufacturing Trends and Implications for Women in Türkiye

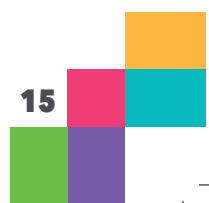
As a middle-income country aspiring to become a high-income advanced economy, Türkiye is in the process of transforming three main aspects of its manufacturing industry: digitalisation, decarbonisation and the empowerment of women. Employing about 4.7 million people and generating an export volume of 241 billion USD, Türkiye's manufacturing sector is undergoing rapid change. The so-called twin transformation, comprising the ongoing digital transformation and green transition processes, is now a priority in the country's policy agenda, as reflected in the 12th 5-year Development Plan. ¹In parallel, as one of the most rapidly urbanising countries in the world, Türkiye is seeking to improve the participation of women in the labour force, and to empower women in the economy.

To achieve sustainable and inclusive economic growth in alignment with the national strategic plans for the development and empowerment of women, Türkiye must advance in digitalisation, decarbonisation and the participation of women in the manufacturing sector. There are several global indices facilitating cross-country comparisons and assessments of overall performance in the adoption of technologies, environmental sustainability and gender equality. While the participation of women in the labour force has increased over the past decade, Türkiye continues to lag behind the EU countries in its efforts to close the gender disparities in economic opportunities. Although progress has been made in digitalisation and the adoption of technologies, the challenges of inclusiveness and access remain. Recognising these as areas in need of development, the 12th 5-Year Development Plan emphasises the need to equip women and young people with the necessary skills to be involved in the digital transformation and green transition. In alignment with this, the Women's Empowerment Strategy and Action Plan (2024–2028) outlines a strategy aimed at enhancing the skills and competencies of women and girls to support their labour market participation within the twin transformation of green and digital industries.

Transformation approaches reveal the interconnected nature of the digital transformation and green transition with WE, emphasising the importance of an inclusive and balanced perspective to sustainable development. The objectives are twofold: preventing the reinforcement or deepening of existing inequalities, while also leveraging opportunities to advance gender equality. From an environmental perspective, Türkiye has placed increasing emphasis on national and international policy development, and has introduced various strategies and action plans. In terms of measurable performance outcomes, however, the country continues to lag behind comparable economies in several global indices.

Different international indices on digitalisation shed light on Türkiye's strengths and weaknesses related to the industrial sector. Among the areas in which Türkiye lags relatively behind, affecting its overall global ranking, are digital skills, the integration of companies into digital technologies, future technologies, regulation and inclusivity. Access and connectivity, on the other hand, can be considered Türkiye's strong points in other areas.

¹Türkiye Presidency of Strategy and Budget (2023). 12th Development Plan.



- » **Digital readiness:** In UNCTAD's Global Index measuring "Readiness for Frontier Technologies" ², Türkiye is ranked 53rd out of 166 countries. Its rank of 75 in ICT (information and communication technologies) is way below its overall rank, while the country fares relatively better in R&D (26th), skills (48th) and finance (49th). This indicates the need for both society and industry to adopt new digital solutions.
- » **Digital skills**³: In Türkiye, 30 percent of the population has at least a basic level of digital skills, while this rate is 54 percent in EU countries. There are also striking disparities across different income groups, regions and sexes. Some 72 percent of the highest income group households, have at least one person with basic or higher digital skills, while this figure decreases to 19 percent in the lowest income group. The second disadvantaged group comprises those residing in the Eastern Anatolia, Eastern Black Sea and Southeastern Anatolia regions, where the rate of digital skill ownership is well below the Türkiye average. The third and final disadvantaged group is women, of whom only 26 percent have basic level skills, compared to 34 percent for men.
- » **Adoption of digital tools in companies**⁴: While companies in Türkiye have made progress in the use of digital technologies over the past 5 years, they lag behind European Union countries in this regard. Businesses in Türkiye have reached a 95 percent rate of Internet access, which is close to that of the EU countries, however, access to high-speed Internet and the use of innovative tools such as ERP, Cloud Computing and Internet of Things remain limited. For example, the percentage of companies using enterprise resource planning (ERP) has been recorded at 28 percent in Türkiye and 36 percent in the EU in recent years. Cloud computing has gained significant popularity worldwide, however, Türkiye has struggled to keep pace, with only 11 percent of businesses in Türkiye having adopted cloud technologies, compared to the EU average of 36 percent and 70 percent in the top five EU countries.
- » **Occupational segregation in Tech:** The misconception that women are less able to use computers and computer technology-based tools perpetuates existing gender inequalities ⁵. Such prejudices result in the lower level of labour force participation of women in technological roles. According to the 2018 Women in Tech Index, women constituted only 10 percent of the labour force in tech fields, which is below the OECD average (17.5%) ⁶. UN Women reports that in leading economies women represent only 26% of employees in artificial intelligence and 12% in cloud IT ⁷.

² UNCTAD, 2023

³ PAL and Vodafone, 2023

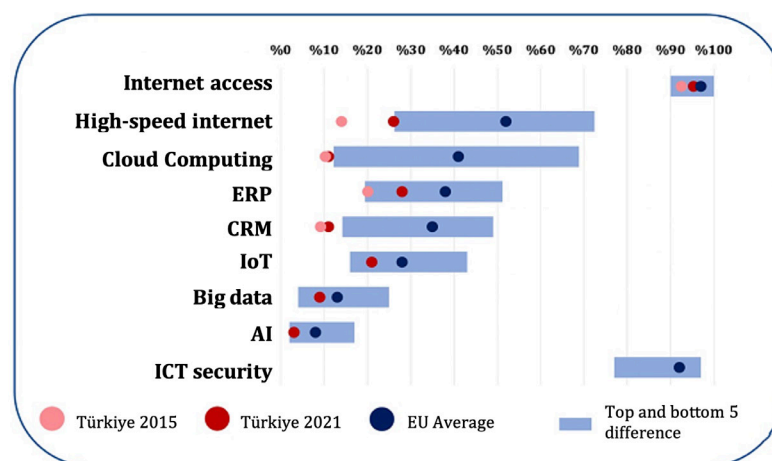
⁴ Ibid

⁵ Tekeli et al, 2020

⁶ Koçer et al, 2020

⁷ UN Women, 2024

Figure 1: Usage rates of selected digital tools, EU countries and Türkiye, 2022



Source: Eurostat and PAL calculations

While the green transition has been introduced as a key policy priority in recent policy documents in Türkiye, most notably in the 12th Development Plan and in Türkiye's 2053 net zero plan, the country has a long way to go in its decarbonisation journey. Türkiye ranks 172nd out of 180 countries in the Environmental Performance Index, and countries with similar per capita GDPs, such as Croatia, Slovakia and Romania, substantially outperform Türkiye in this regard. This highlights the potential risks and disadvantages that Türkiye may face in accessing the EU market in the upcoming years when the carbon border adjustment mechanism (CBAM) becomes operational. The manufacturing sub-sectors in particular are expected to be adversely affected by CBAM, including the iron and steel, aluminium and petroleum sectors that currently enjoy a combined export volume of 10 billion USD to the EU. When Scope 2 of CBAM is considered, the manufacturing sectors that process steel and aluminium are likely to be very negatively affected. Consequently, a large majority of Turkish manufacturers in this market can be expected to suffer a significant loss of competitiveness, including, for example, those engaged in automotive and household goods manufacturing .

While preparing for the twin transformation in the manufacturing sector, Türkiye must also tackle a third severe challenge in the realm of WE. According to ILO (2021), women account for around 47 percent of the global workforce, but only 20 percent of workers in the manufacturing sector. Furthermore, the World Economic Forum (2016) states that women account for 33 percent of entry-level positions, 24 percent of mid-level roles, 15 percent of senior positions and just 9% of CEO positions in various sectors. No specific data is available for Türkiye, although it is assumed that Türkiye fares below the global average, in line with its overall standing in international indices. According to the 2024 Global Gender Gap Report of the World Economic Forum⁸, Türkiye ranks 127th out of 146 countries in terms of gender equality, and more specifically, 90th in terms of educational attainment among women, 114th in the political empowerment of women, 133rd in the economic participation and opportunities open to women, and 98th in the health and survival of women.

⁸World Economic Forum, 2024

Moreover, Türkiye ranked 45th in the Human Development Index in 2024, and 63rd in the Global Gender Inequality Index in 2022⁹. In 2022, the Human Development Index value for men was recorded at 0.88, compared to 0.83 for women, revealing a notable and persistent gap in gender inequality¹⁰. According to UNIDO (2019)¹¹, the increased participation of women in companies could lead to performance improvements, including greater productivity, better decision-making, diversified risk management, and increased innovation and efficiency. The empowerment of women should, thus, be considered essential for successful economies, and particularly for their digital transformations and green transitions. The involvement of women can bring diverse perspectives, foster innovation and promote sustainability, thus ensuring inclusive progress.

“The future of jobs” paradigm, while underlining the transformative challenges in the labour market, also points to several opportunities for the empowerment of women, especially in the manufacturing sector. At a global level, digitalisation and green industries are advancing hand-in-hand with technological progress. Existing technologies can be used to automate roughly 50 percent of jobs, while in Türkiye, up to 30 percent of six out of 10 occupations could potentially be automated.¹² According to McKinsey (2020), in the next decade, supportive investments into automation and digital technologies may support the creation of 3.1 million net new jobs. By 2030, despite an estimated loss of 7.6 million jobs, 8.9 million new jobs could be created, resulting in a net gain of 1.3 million jobs. A study by the OECD (2017) suggests that as digitalisation trends diffuse throughout the labour market, the job prospects of women are increased due to the increased flexibility associated with online employment opportunities. It is important to recognise, however, that while the flexibilisation of work increases the opportunities for women in employment, it does not necessarily lead to improvements in job quality. The persistent disparities in gender roles, both at work and in the home, continue to influence employment. ILO (2022) anticipates that the transition to the green economy will lead to the creation of 300,000 jobs related to renewable energy by 2030, contributing 8 billion USD to GDP, while Türkiye’s Zero Waste Action Plan by UNICEF (2023) is expected to generate around 100,000 jobs, potentially increasing the participation of women in the workforce and overall employment.

Adapting to these contemporary trends will require massive skill development among women in Türkiye and improvement in the management practices of companies. In the forthcoming job landscape, skills are grouped into five key categories: physical/manual, basic cognitive, higher cognitive, social/emotional, and technological. In Türkiye, a surge in demand for technological and social skills is expected in most sectors, while basic cognitive and physical skills may decline due to the impact of automation on such tasks as data entry and equipment operation. Significant shifts are foreseen by 2030, including a 63 percent increase in technological skills, a 22 percent rise in social skills and a 7percent uptick in higher cognitive skills, whereas basic cognitive and physical skills are predicted to decrease by 10 and 8 percent, respectively. This presents a notable opportunity to reduce gender disparities if such jobs can be made available equally to both women and men. The resulting inclusivity will diversify industrial employment and provide opportunities to enhance the

⁹United Nations Development Programme (UNDP), 2022b

¹⁰United Nations Development Programme (UNDP), 2022a

¹¹UNIDO, 2019

¹²McKinsey, 2020

talent pool, while also increasing the potential to narrow the income and economic achievement gaps between the sexes. Efforts towards a gender-equal transformation can lead to more inclusive workplaces and work cultures, contributing to overall gender equality. In this regard, monitoring the outcomes of large-scale skill development initiatives targeting women within this transformation process is essential, along with the establishment of regulations that promote decent work that address gender-related needs and interests. As a further measure, institutional frameworks should ensure shared responsibilities in caregiving, particularly for those with specific needs, such as older adults and children so as to support gender equality.

The access of Turkish manufacturers to the global value chains requires compliance with the Environmental, Social and Governance (ESG) norms, with notable impacts on business agendas, especially regarding WE. Efforts to follow ESG norms reveal Türkiye's commitment to the sustainability principles as well as its efforts towards integration with the Global Value Chains (GVC) and WE. The compliance of ESG norms with SDG goals, such as SDG 5 (Gender Equality) and SDG 8 (Decent Work and Economic Growth), highlights the importance of WE for sustainable development. Furthermore, the Women's Financial Inclusion Data (WFID)¹³ report suggests that adherence to Corporate Social Responsibility (CSR) and ESG norms positively affects the employment of women in Türkiye. For example, among the Financial Service Providers surveyed in the report, in 75 percent of the commercial banks, the interest in the importance of women in the workforce is driven primarily by adherence to the ESG norms. In the coming years, an increase in the resources allocated to WE and a growing interest in the private sector are expected.

The prevalence of OIZs in Türkiye's manufacturing sector makes them highly strategic policy tools for the enhancement of gender equality and economic opportunities for women. There are currently 402 organised industrial zones (OIZs) in Türkiye, 280 of which are active, marking a considerable increase for the 192 recorded in 2002¹⁴. These OIZs are host to around 67,000 businesses that carry out approximately 45 percent of Türkiye's industrial production¹⁵ and employ around half of the total industrial workforce, 2.5 million jobs.¹⁶ In the context of WE, OIZs can play a strategic and supportive role in employment and entrepreneurship through such policy interventions as training and upskilling programmes, kindergartens and public transport options.

¹³WFID, 2022

¹⁴OSBUK Statistics

¹⁵OSBUK Statistics

¹⁶World Bank, 2021



2. BACKGROUND



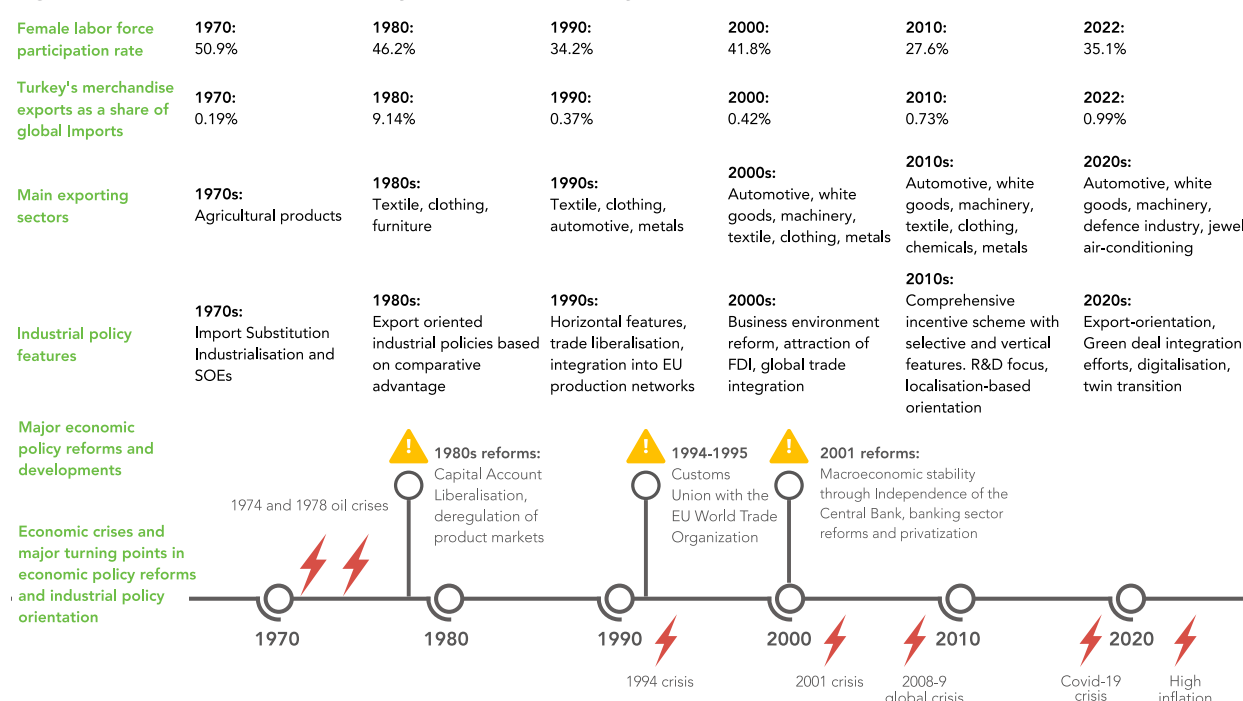
2.BACKGROUND: TÜRKİYE'S INDUSTRIALISATION PROCESS AND WOMEN IN THE LABOUR FORCE

This section provides a historical and structural assessment of Türkiye's industrial development and the participation trends of women in the labour force, providing an understanding of the gender dynamics at play in today's manufacturing sector. The milestones in the transformation of Türkiye's industrial policy are first mapped with references to the integration of women into the labour force. It then goes on to explore the patterns in the labour force participation of women, highlighting the socioeconomic and institutional factors that have influenced their inclusion or exclusion in different economic periods. Finally, it presents an overview of female employment trends, with specific focus on the sectoral distribution, the evolution of the role of women in manufacturing and the gaps that have persisted in shaping today's gendered labour market.

2.1. Milestones and Trends in the Manufacturing Industry

Türkiye's manufacturing industry experienced a significant transformation beginning in the 1960s that was driven by global industrial trends and shifts in domestic policy. In the early 20th century, the Turkish economy was predominantly agrarian with limited industrial output, and the transition toward manufacturing in Türkiye gained significant momentum in the aftermath of World War II, catalysed by government policies aimed at industrialisation through the Import Substitution Industrialisation (ISI) strategy. This period witnessed the establishment of basic industries, including textiles, food processing and cement, laying the groundwork for more diversified industrial activities in the future. In the 1980s, Türkiye initiated an economic policy shift towards export-oriented growth involving the liberalisation of the economy and manufacturing activities, and encouraging private sector participation. This was instrumental in the expansion of the manufacturing sector, and led to significant growth in the textile, automotive and electronics sectors, thereby setting the stage for Türkiye's active participation in the global marketplace.

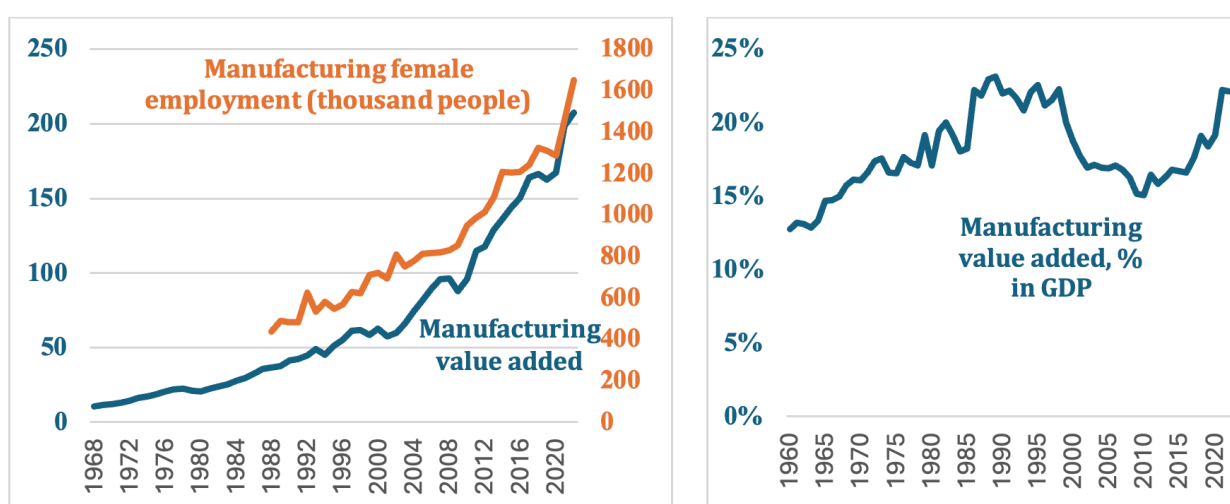
Figure 2: Transformation of Türkiye's Industrial Policy Over the Last 50 Years



Source: Compiled by PAL

After starting with a modest share in the 1960s, the ratio of Türkiye's manufacturing value added to GDP rose to 1520% in the 1980s, and has been fluctuating at around 15–25% since the 2000s. Between 1960 and 2022, Türkiye's manufacturing sector undergone a transformation from an import substitution-based model to a strong export-driven contributor to GDP, fuelled by policy shifts from local industrialisation to global market integration, as well as liberal reforms and EU harmonisation efforts. The contribution of the manufacturing sector to GDP witnessed a gradual increase from 1960 to 1990, starting with import substitution industrialisation (ISI) in the 1960s that was followed by the establishment of foundational industries. The liberal economic reforms in the 1980s and export-oriented growth saw the sector increase its contributions to 19 percent of GDP – a figure that fluctuated around the 22 percent level between 1990 and 2000, despite financial crises and economic instability as Türkiye pursued its structural reforms, privatisations and global integration. In the period from 2000 to 2022, the share of the manufacturing sector in GDP initially declined due to financial crises and the expansion of the services sector, but rebounded to 22% in 2022, driven by Türkiye's push to become a regional economic power, its EU accession negotiations and its strategic investments in key sectors. Between 1968 and 2022, Türkiye's manufacturing sector experienced sustained growth, with value added increasing by an average of 5.7% annually (in constant 2015 USD terms), and by 2022, manufacturing value added had reached approximately 200.55 billion USD in current prices. Furthermore, female employment in manufacturing grew by 4 percent each year between 1988–2022, reaching 1.6 million in 2022.

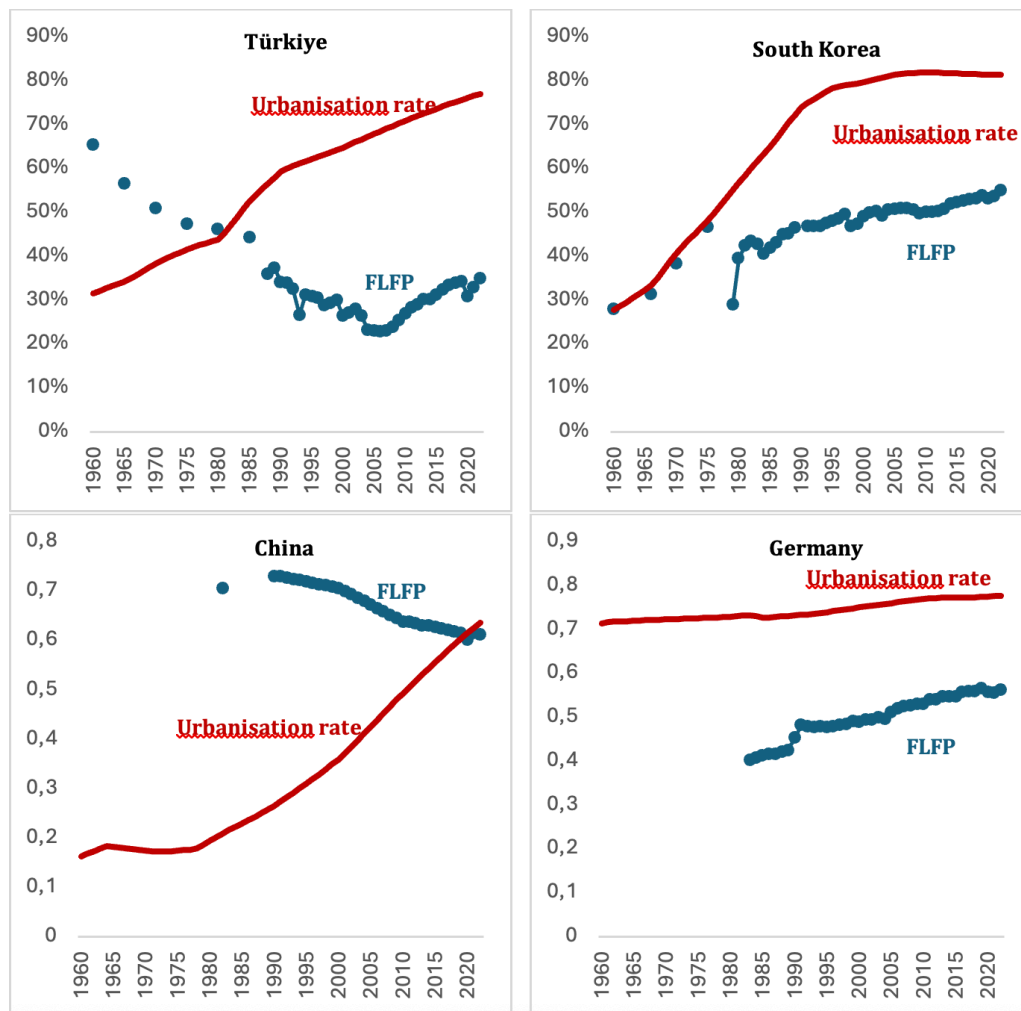
Figure 3: Left: Female employment in manufacturing (000s), 1988–2022; Right: Manufacturing value added, in billion 2015 constant USD 1968–2022



Source: The World Bank, PAL calculations

Türkiye's industrialisation journey has been accompanied by a rapid urbanisation process, and has caught up with Germany's 140-year urbanisation process in just 70 years, unfolding at a remarkable pace when compared to historical standards (Figure 4). Since the 1980s, the urbanisation rate has experienced a rise from 40 percent to 75 percent, due mainly to the concentration of economic activity in the western regions and migration to these regions. Türkiye's pace and pattern of urban growth resemble those of such East Asian economies as China and South Korea, and this rapid pace can be considered both a catalyst for, and result of industrial growth. That said, it has also brought about a set of challenges that need to be addressed, such as housing shortages, social inequality, and inadequate education, healthcare and job opportunities. The transition from agrarian and rural lifestyles to urban life has brought about significant social challenges, especially for women, as reflected in the deskilling and low female labour force participation rates. The skills that women acquire through agricultural and domestic work are rarely aligned with the demands of industrial production in urban areas. In this transition, economic value generated through production has taken precedence over the social value traditionally associated with reproductive labour. Women are often regarded as the primary contributors to reproductive household responsibilities, and as their participation in formal employment is perceived as secondary and their income viewed as a supplement to household earnings, they tend to form a labour reserve that is more vulnerable to job displacement, frequently experiencing employment patterns following a "last in, first out" logic.

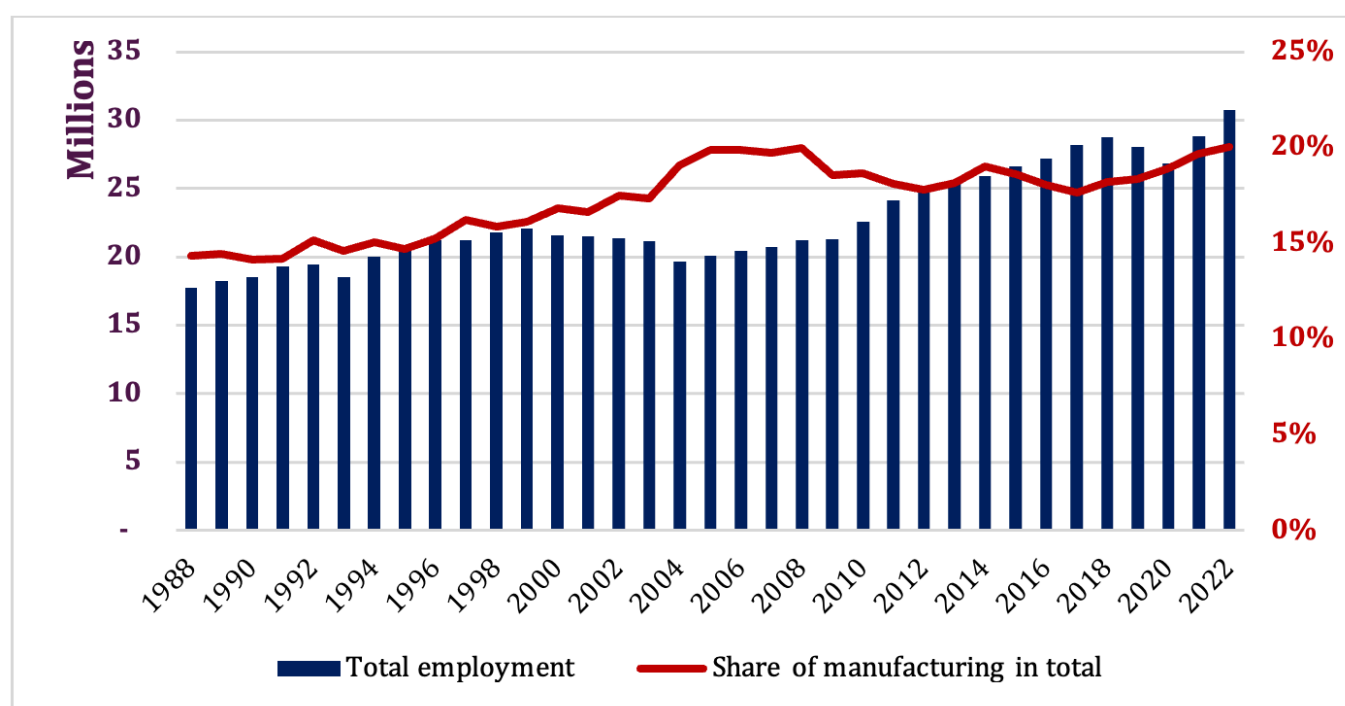
Figure 4: Urbanisation and Female Labour Participation Rates: Türkiye, South Korea, China, Germany 1960–2022



Source: The World Bank, PAL calculations

The manufacturing sector has played a pivotal role in Türkiye's economic development, and makes substantial contributions to overall employment. Beyond providing jobs for a considerable portion of the population, it has spurred urbanisation and the shift of labour from rural to urban areas, reshaping demographic trends and fostering urban growth. Total employment in Türkiye showed an upward trend throughout the 1990s, surpassing 20 million, and while total employment declined between 2000 and 2008, a level of around 20 million was maintained. Within this period of decline, the share of the manufacturing sector increased from 15 to 20 percent, which could be attributed to the manufacturing sector being relatively less affected by the economic downturn than the more volatile sectors, allowing it to maintain and even grow its share in total employment. Following the 2008 global financial crisis, employment has increased steadily from 21 million, reaching 30 million by 2022, with the service sector showing remarkable growth, while the manufacturing sector maintained its level of 20 percent in total employment. These growths and fluctuations over the years have led to a significant shift in Türkiye's employment landscape. From 1988 to 1999, the average shares agriculture and services in employment were 44 percent and 34 percent, respectively, changing to 29 percent and 46 percent between 2000 and 2009. From 2010 to 2022, they stood at 20 percent for agriculture and 54 percent for services, and in 2022, the agricultural sector comprised 16 percent of total employment, while services accounted for 58 percent.¹⁷

Figure 5: Total employment in Türkiye and the share of manufacturing in total employment, 1988–2022



Source: TurkStat, PAL calculations

¹⁷Turkish Statistical Institute

Over the past two decades, Türkiye has experienced a 6.4-fold increase in the export of manufactured goods, representing an average annual growth rate of 8.3 percent. The export value of Turkish products rose from 44 billion USD in 2003 to 219 billion USD in 2023, with the five crucial manufacturing subsectors of automotive, textiles, food products, metals and machinery accounting for almost half of the total (Table 2). Some 31 billion USD of this is made by the automotive sector, as the leading exporter, followed by basic metals and food products, contributing 22 billion USD and 19 billion USD, respectively. Apparel ranked fourth in 2023, with exports of 18 billion USD, after being the largest exporter in 2003, while the machinery sector's contribution reached 16 billion USD in 2023. Industrial exports as a whole recorded a compound annual growth rate (CAGR) of 8.3 percent between 2003 and 2023, among which, the fastest growth rates were seen in wood products, furniture, paper products, basic pharmaceutical products, coke and refined petroleum products, and machinery and equipment. All sub-sectors other than apparel, textile products and other non-metallic products performed better than the industry average.

Table 2: Exports of ISIC Manufacturing Subsectors between 2003 and 2023 (million USD)

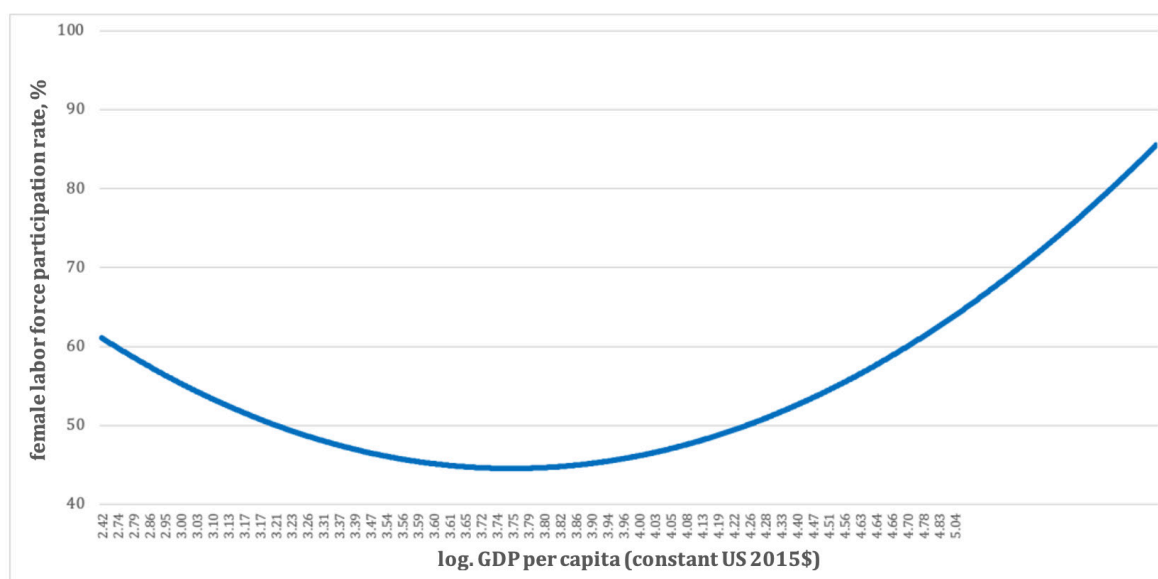
ISIC Manufacturing subsectors	2003	2023	03-23 CAGR
Motor Vehicles, Trailers, and Semi-Trailers	5,557	30,560	9%
Basic Metals	3,885	21,546	9%
Food Products	3,038	18,514	9%
Apparel	9,958	17,741	3%
Machinery and Equipment n.e.c.	1,586	15,697	12%
Electrical Equipment	2,393	15,520	10%
Chemicals and Chemical Products	1,704	14,842	11%
Fabricated Metal Products, except Machinery and Equipment	1,625	13,593	11%
Textile Products	5,025	12,835	5%
Rubber and Plastic Products	1,477	10,441	10%
Other Manufacturing	914	10,043	13%
Coke and Refined Petroleum Products	953	8,637	12%
Other Non-Metallic Mineral Products	1,804	6,432	7%
Other Transport Equipment	1,222	5,965	8%
Furniture	371	3,741	12%
Paper and Paper Products	387	3,593	12%
Computer, Electronic and Optical Products	2,086	2,797	1%
Basic Pharmaceutical Products and Pharmaceutical Preparations	219	1,997	12%
Wood and of Products of Wood and Cork, except Furniture; Articles of Straw and Plaiting Materials	147	1,756	13%
Leather and Related Products	286	1,685	9%
Tobacco Products	94	698	11%
Beverages	53	400	11%
Printing and Reproduction of Recorded Media	3	23	10%
Total manufacturing	44,786	219,056	8%

Source: TurkStat, PAL calculations

2.2. Women's Labour Force Participation

The participation of women in the labour force is influenced by various socio-economic factors, with historical roots tracing back to the establishment of the factory system in the 18th century. Today, the female labour force remains high in agriculture-based economies and high-income countries, but tends to be lower in countries experiencing rapid rural-to-urban transitions.¹⁸ There is a U-shaped relationship between the female labour force participation rate (FLFP) and GDP per capita of a country (Figure 6) that is attributable to such factors as (1) the density of agriculture in the economy, (2) the gender norms that place the responsibility of family care on the shoulders of women, (3) digitalisation and (4) low access to education and the labour market (Box 2)¹⁹. The negative correlation between the female labour force participation and industrial sector growth may be associated with opportunities in the agricultural sector or in low-skilled jobs that are open to unskilled women. That is one reason for the higher female labour force participation rate seen in countries with lower GDP per capita. On the other hand, women in high-income countries can make substantial contributions to the labour force given their greater access to education and the skills required by the job market, and the variety of social and cognitive skills, in addition to basic ones, demanded by the private sector. Conversely, in middle-income countries, the female population usually has limited access to the education required by industrial jobs, and especially the skills required by the male-dominated sectors considered unsuitable for women based on the gender stereotypes within the labour market.

Figure 6: Female Labour Force Participation by GDP per capita, global, 2022



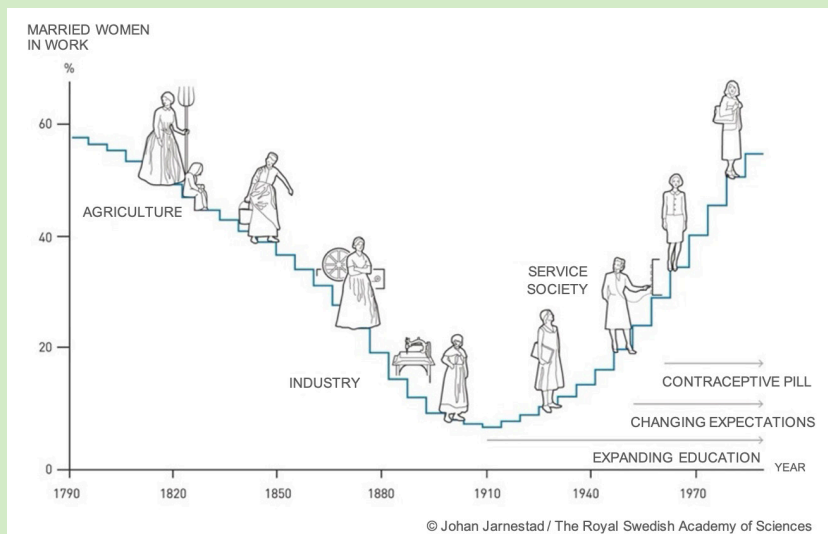
Source: ILOStat, World Bank, PAL Calculations

¹⁸Gülay Toksöz ve Emel Memiş, 2018

¹⁹Goldin, Claudia, 1994

Box 2: Claudia Goldin's research on married women in the workforce

Claudia Goldin was awarded the Nobel Prize in Economic Sciences in 2023 for her groundbreaking research on women in the labour market. One of Goldin's most important findings is the historical U-shape of female labour force participation in the United States. Goldin claims that the density of women in the labour force alters as the main economic activity changes. In her research, Goldin showed that women participate less in industrial sectors than the service and agricultural sectors as a result of social gender norms. The United States recorded its lowest labour force participation rate for married women at the beginning of the 20th century, when married women took on the role of homemaker and caretaker in the family. In the late 20th and early 21st century, the labour force participation of women accelerated with the rise of the service sector, WE movements, and their greater access to education and professional opportunities²⁰

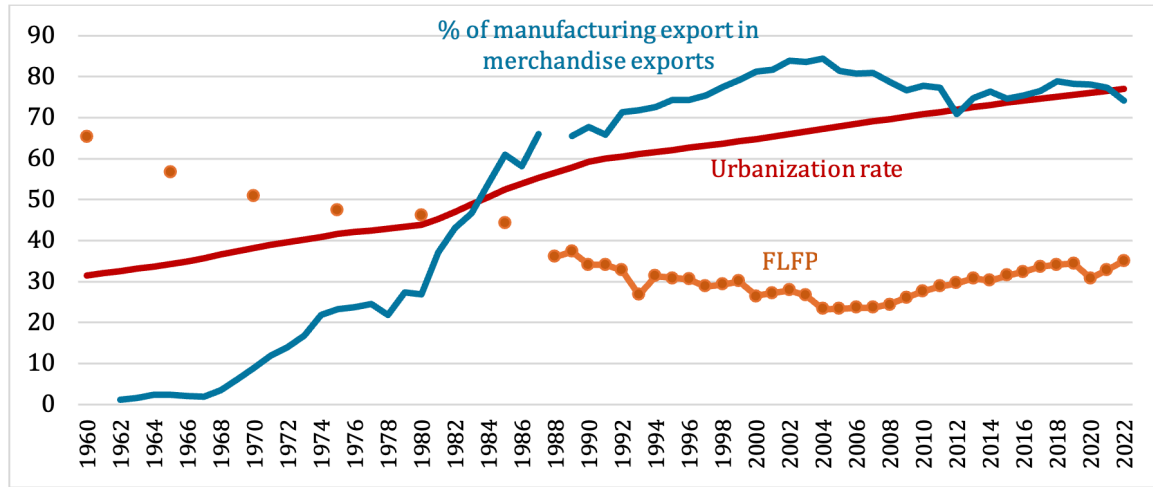


Source: Goldin, Claudia (1994)

The female labour force participation rate in Türkiye was 65 percent in 1960, but entered a period of decline during the country's rapid industrialisation and urbanisation before taking an upward turn in 2010. After the high of 65 percent in 1960, the female labour force participation rate hit its lowest point of 24 percent in 2004 during the period of rapid industrialisation and urbanisation (Figure 7). Between 1960 and 2022, Türkiye underwent a social rural-to-urban transformation during which the urbanisation rate rose from around 30 percent to 80 percent, while the share of the manufacturing sector in exports underwent a simultaneous increase from around 10 percent to 80 percent in the mid-2000s. The change in the economic structure brought by urbanisation and industrialisation pushed women out of the labour market in Türkiye, moving them towards housework. The inverse relationship between the female participation rate and urbanisation, as well as the growth of manufacturing exports, was maintained until 2009, after which the female labour force participation rate began an upward trend. Possible reasons for this may be the development of the service sector and the growing income needs of households. By 2022, the female labour force participation rate had increased to 35 percent, from 24 percent in 2009, marking a gradual rise in the involvement of women in the workforce. This upward trend becomes even more promising for gender equality when considering the fact that the male participation rate remained stable at around 71 percent during in same period (2010–2022).

²⁰ Despite the significant cultural and historical differences, the findings of Goldin's historical analysis are in partial alignment with the female labour force participation trends in Türkiye. During the structural transition of the economy from an agricultural to an industrial base in Türkiye, the labour force participation rate of women entered a period of decline. Ecevit (2000: 136) notes that the agricultural sector remains the primary source of employment for women in Türkiye, accounting for 72 percent of the total, with a large proportion of women working as unpaid family labourers in rural areas. Furthermore, the urbanisation that accelerated in the 1950s, contributed to the "housewifization effect of migration" (Ecevit, 2000), leading to a decline in the labour force participation of women.

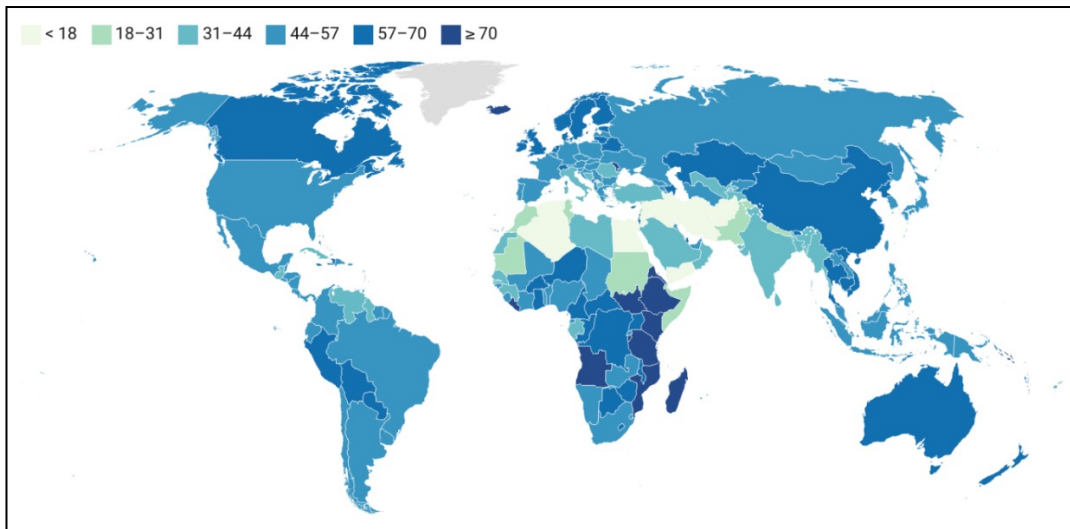
Figure 7: Urbanisation rate, share of manufacturing in exports, and Female Labour Force Participation rate, %, Türkiye, 1960–2022



Source: ILOStat, World Bank, PAL Calculations

Türkiye's female labour force participation (FLFP) rate stood at 35 percent in 2022, which is lower than the global average of 48 percent. Türkiye's FLFP rate is significantly lower than in East African nations, which have high participation rates due to their reliance on agriculture, and also differs significantly from the Middle East countries neighbouring Türkiye, where the participation is notably low. While countries like Madagascar, Burundi, Mozambique and Tanzania have rates exceeding 77 percent, it is considered that the Middle East with countries such as Afghanistan and Yemen at 5%, and Iraq, Syria, and Jordan just above, may reflect the impact of cultural factors on women's employment.. Türkiye's rate of 35 percent is above that of most of its Middle Eastern neighbours, but still lags behind the global average of 48 percent, the G20's 49 percent and the EU's 52 percent. Türkiye's ranking is closer to that of such countries as India, Saudi Arabia, Libya, Bangladesh and Senegal, and the European nations of Italy, Romania and Greece.

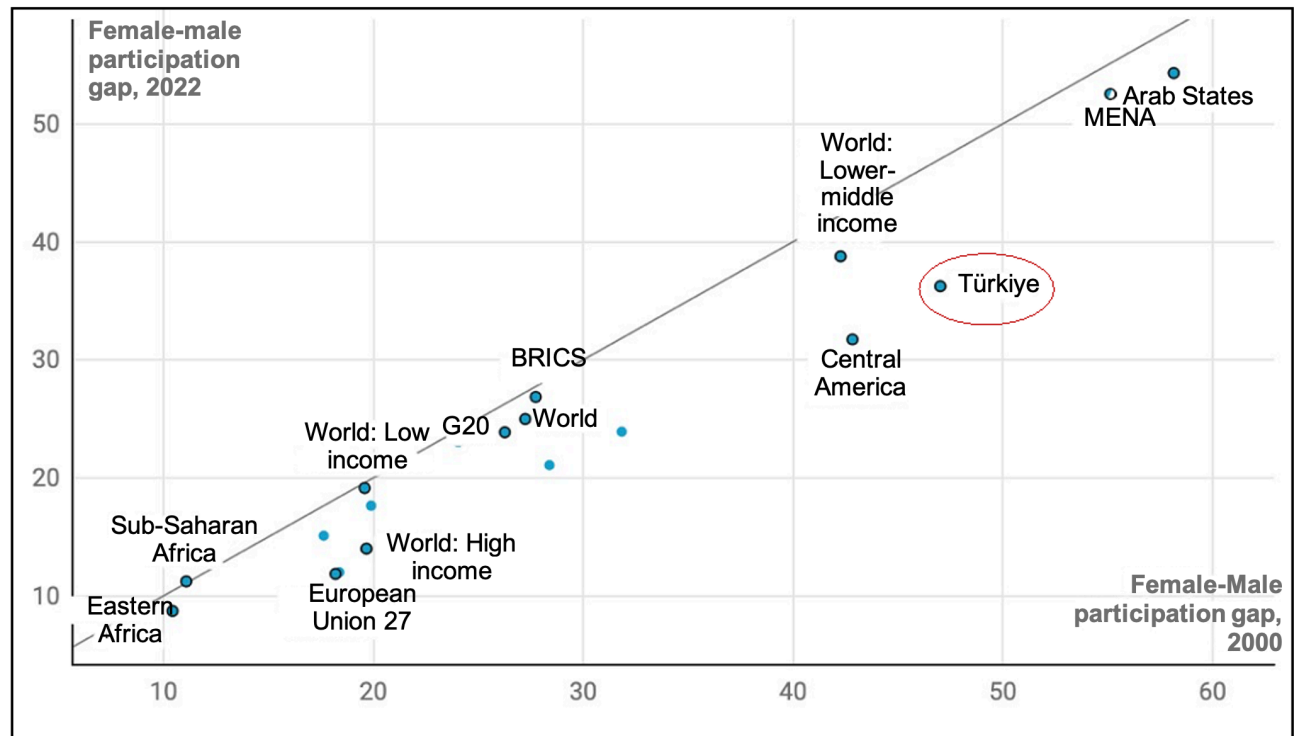
Figure 8: Female LaborLabour Force Participation Rate, All countries, %, 2024



Source: ILOStat, World Bank, Datawrapper

Türkiye has witnessed a significant narrowing of the gender gap in labour force participation rates, although it is still lagging behind the high-income countries. The global average of the gender gap in FLFP witnessed a decline from 27 percent to 25 percent between 2000 and 2022. The Sub-Sahara African region in particular has been unable to decrease this gap, while the BRICS nations and low-income countries have seen slight improvements. Despite the decreases witnessed in FLFP in MENA (55.13% to 52.54%) and the Arab states (58.15% to 54.31%), they still led the regions in terms of FLFP in 2022[CNE1]. Türkiye had a relatively high female-male participation gap of 47 percent in 2000, similar to Central American countries, but has been able to decrease it to 36 percent in two decades. Despite the improvements, Türkiye is performing slightly better than the world's low-middle-income countries, but lags behind the global, high-income country and EU averages. The gender gap in labour force participation remains a key development challenge, positioning Türkiye among the lower-middle-income countries. Efforts to reduce this gap are expected to contribute to the country's economic development.

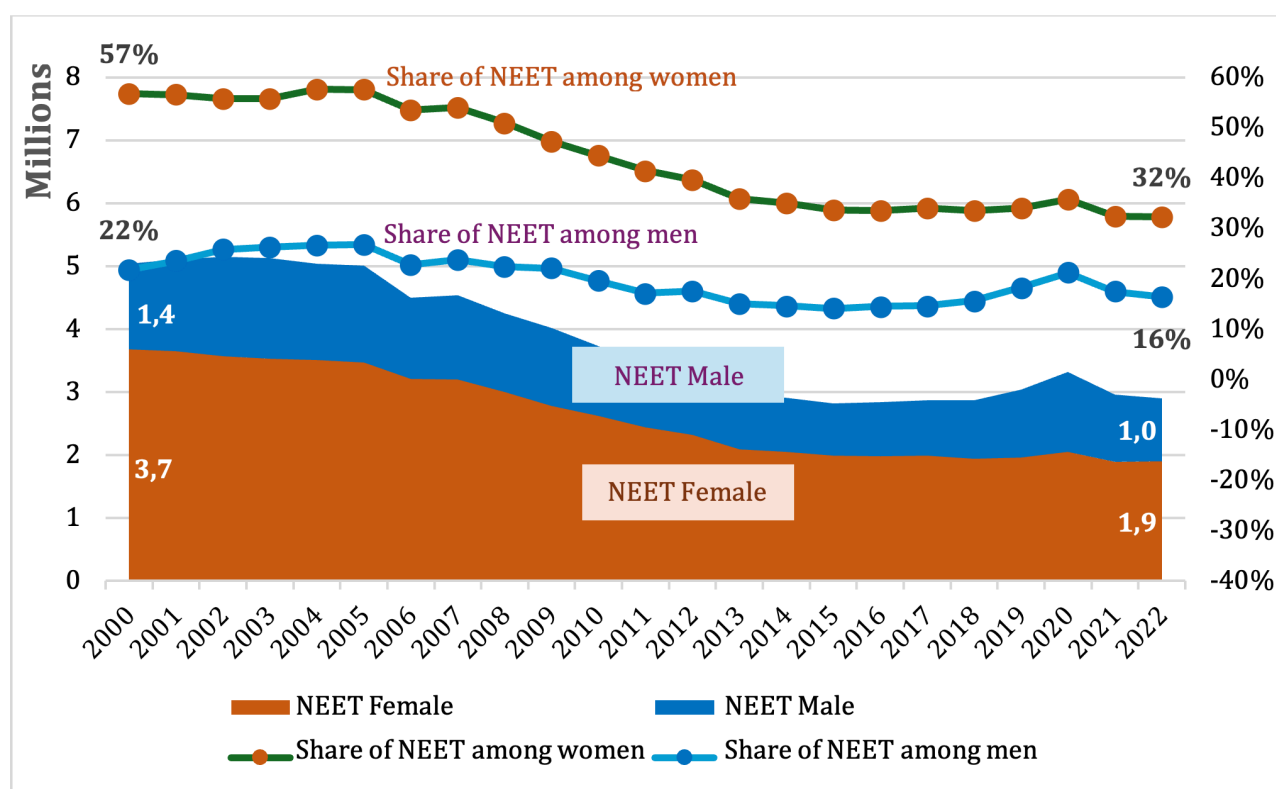
Figure 9: Gender gap in labour force participation, Türkiye and country/regional groups, 2000 - 2022



Source: ILOStat, World Bank, Datawrapper, PAL calculations

The significant difference between men and women not in education, employment or training (NEET) is another striking indicator of the gender gap in labour force participation. People between the ages of 15 and 24 years not in education, employment or training are defined as NEETs. Between 2000 and 2022 in Türkiye, the number of women NEETs has been consistently higher than that of men, although a decline can be seen from 57 percent to 32 percent (Figure 10). While 15-24 age group covers a rather limited age span, the high NEET rate in this age group which is often a career starting period, highlights a challenging scenario in which gender-based inequalities in both the public and private realms significantly hinder the entry of women into the labour force at later ages. When a family reaches a sufficient income level at which they can afford to employ carers for children, the sick or elderly, women have the opportunity to participate in the workforce and continue their careers, and to leave the care-related needs of the family, which would be expected to be borne by women within the unequal distribution of familial work in patriarchal families, to others.

Figure 10: Young people (15–24) not in employment, education or training (NEET), million people and share, by gender, 2000–2022

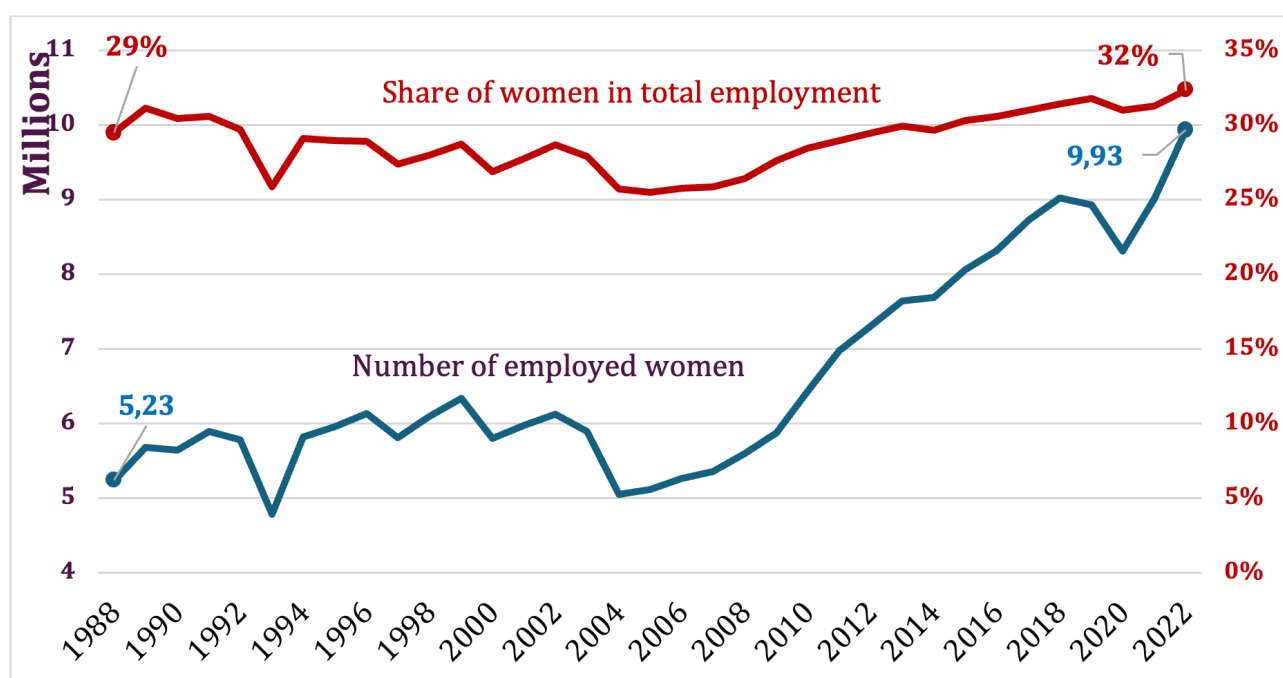


Source: ILOStat, PAL Calculations

2.3. Women's Employment

Women's employment in Türkiye reached a historic high in 2022, with nearly 10 million women in employment. Between 1988 and 2004, excluding periods of economic crisis, the number of employed women followed a fluctuating course, stabilising at around 5 million and a share in total employment of around 29 percent. Since then, there has been a consistent upward trajectory, with only a slight dip in 2020 that can be attributed to the COVID-19 pandemic. In this period, alongside the increased access of women to education and training opportunities, legislative measures supporting the employment of women have contributed to their empowerment both in the workforce and within their families, with the number of employed women rising from 5 million to 10 million – the highest level recorded to date. This upward trend, however, has been influenced the increase in the retirement age²¹, and the inclusion of women who are primary caregivers for family members and who receive social assistance within employment statistics.²² The proportion of women in total employment has seen a modest increase of 2.8 percentage points, resulting in a 32 percent share in 2022. Following this trend, the rise in women's employment signifies positive steps toward gender parity in the workforce, but also underscores that further efforts are needed to bridge the remaining gender gap, and to address the gendered forms of labour market segmentation and occupational and sectoral segregation, as well as women's unemployment. The manufacturing sector plays a significant role in this regard.

Figure 11: Women's employment, and their share in the total, million persons and percentages, 1988–2022



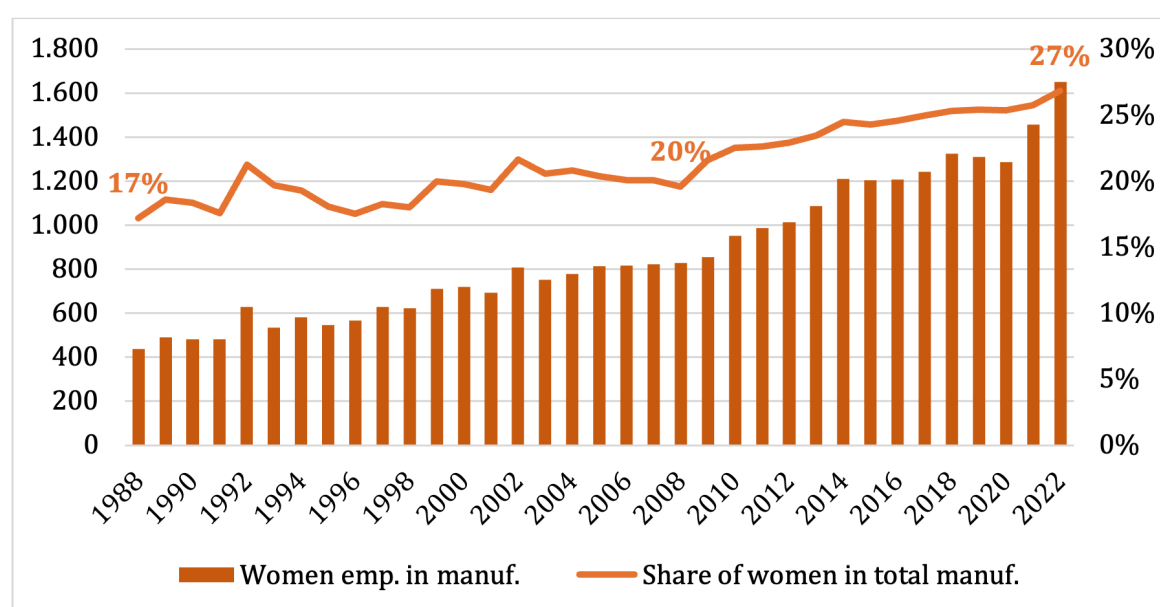
Source: TurkStat, PAL calculations

²¹Aldan, A et al., 2019

²²This increase can also be attributed to the inclusion of approximately 520,000 unpaid care workers, who have been classified as health workers and counted as part of the labour force in Türkiye, since 2014, despite not receiving formal wages or employment benefits. This classification has boosted female labour force participation rates without necessarily reflecting real progress in their access to paid employment opportunities (Uysal, G et al., 2019). The counting of unpaid carers as health workers has inflated the female employment rate in the services sector and suppressed the female employment rate in the manufacturing sector.

The employment of women in Türkiye's manufacturing sector followed an upward trend between 1988 and 2022, resulting in an increase in the number of employed women from 450,000 to 1.7 million. This upward trend can be largely attributed to the overall growth of the economy and labour force, although the proportion of women employed in the manufacturing sector also saw a substantial 9.6 percentage point increase in the same period (Figure 12). The increase in women's employment and their share in the manufacturing sector has been accelerating, particularly since 2008, with employment doubling to 1.7 million and their share increasing by 7 percentage points. While the representation rate of women in the manufacturing sector is lower than in the total economy, the gap is gradually declining. The gap shrank to a mere 5 percent in 2022. [CNE2]By 2022, a considerable improvement had been achieved from the 12 percent gap observed in 1988. While this indicates the success of the steps taken towards gender equality in the manufacturing sector in Türkiye, there is still a need to increase the level of inclusiveness.

Figure 12: Women's employment in Türkiye's manufacturing sector, 1988–2022



Source: ILOStat, PAL Calculations

From 2008 to 2023, Türkiye recorded a notable increase in the participation of women in manufacturing employment, with the overall share rising from 20 percent to 29 percent. The apparel manufacturing sub-sector has the highest share of female employment at 55 percent, followed by basic pharmaceuticals and food products at 44 percent and 39 percent, respectively. The automotive, furniture and basic pharmaceutical sectors have witnessed the most rapid annual growth rates of women in employment, but despite these advances, women still face such challenges as gender bias in hiring practices, limited opportunities for advancement and a lack of supportive workplace policies, all of which continue to hinder the full integration of women into the manufacturing sector. On the global stage, the World Bank's Women, Business and the Law 2022 report gave İstanbul, Türkiye a score of 82.5 out of 100, reflecting advancements in freedom of movement, work decisions and gender equality in property and inheritance, yet indicating a need for legal improvements in areas affecting women's pay, marriage constraints, post-childbirth employment, entrepreneurship and pensions, all of which are areas critical for sustainable and equitable economic growth.²³

²³ World Bank, 2022

Table 3: Share of women employment in total manufacturing subsectors and CAGR, 2009–2023

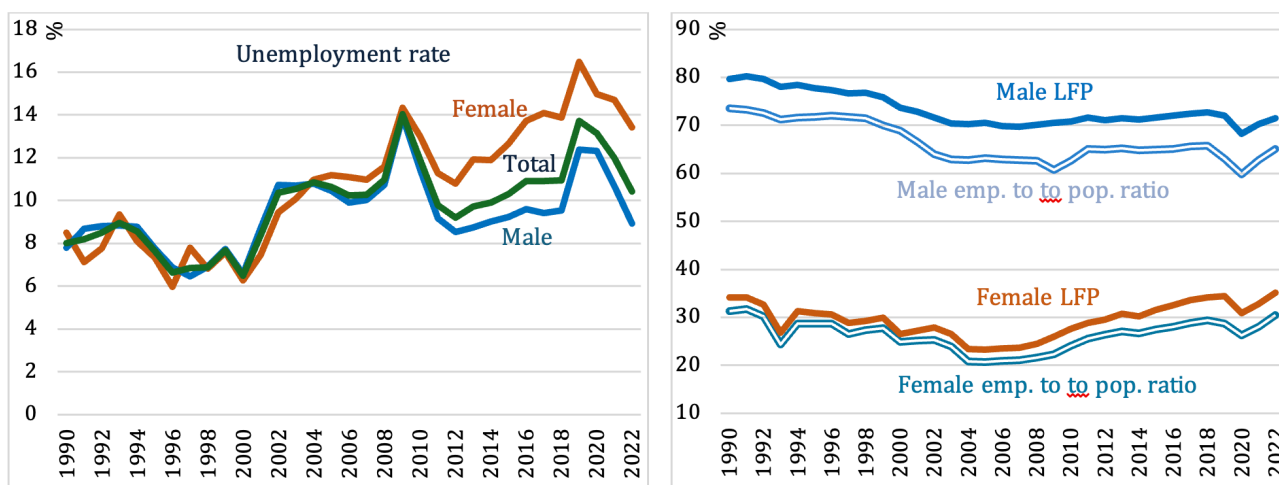
Sectors	2009	2023	Women employment CAGR	Total employment CAGR
Apparel	46%	55%	5%	3%
Basic Pharmaceutical Products and Pharmaceutical Preparations	35%	44%	18%	17%
Food Products	21%	39%	8%	3%
Other Manufacturing	21%	37%	12%	8%
Computer, Electronic and Optical Products	26%	35%	3%	1%
Tobacco Products	24%	35%	-3%	-5%
Leather and Related Products	17%	31%	9%	4%
Textile Products	26%	31%	2%	1%
Printing and Reproduction of Recorded Media	22%	30%	-1%	-4%
Chemicals and Chemical Products	22%	28%	5%	3%
Electrical Equipment	15%	27%	11%	6%
Rubber and Plastic Products	15%	26%	9%	5%
Paper and Paper Products	20%	23%	7%	5%
Beverages	12%	22%	8%	4%
Motor Vehicles, Trailers, and Semi-Trailers	8%	22%	23%	15%
Furniture	10%	20%	22%	17%
Fabricated Metal Products, except Machinery and Equipment	9%	19%	6%	1%
Wood and Wood and Cork Products other than Furniture; Articles of Straw and Plaiting Materials	8%	18%	8%	1%
Machinery and Equipment n.e.c.	12%	18%	5%	2%
Other Non-Metallic Mineral Products	10%	17%	6%	2%
Coke and Refined Petroleum Products	9%	16%	5%	0%
Repair and installation of machinery and equipment	10%	15%	4%	2%
Basic Metals	7%	10%	6%	3%
Other Transport Equipment	6%	10%	10%	5%
Manufacturing total	20%	29%	6%	3%

Source: ILOStat, PAL Calculations

Despite the rising employment, women's unemployment remains higher than men's, indicating deeper issues related to job creation and workforce inclusion than mere participation rates. While the unemployment rate among men has fluctuated for many years, the rate among females has been consistently higher, with a greater gap seen after 2004. The peak unemployment point for women was 16 percent in 2019, compared to 12 percent for men, while in 2022, female unemployment was 13 percent, compared to 9 percent for males. This indicates not just a need for more women in the workforce but also an urgent need for the creation of jobs that accommodate the increasing number of women seeking employment. On the other hand, while the female participation rate has followed an upward trend since 2009, employment has not been able to keep pace – employment as a percentage of the population has increased by 4 percent, whereas the female labour force participation has witnessed a 27 percent increase. The FLFP rate increased by 9 percent from 2009 to 2022, reaching 35 percent, while the labour force participation rate of males plateaued in the

same period. All these gaps and trends indicate a need to address the systemic barriers that prevent women from securing employment and to match their growing presence in the labour market, and further highlight that while more women may be willing and having necessary qualifications to work, they face greater barriers in finding employment. This indicates a need for targeted job creation strategies that can effectively address the gender disparities in Türkiye's labour market.

Figure 13: Unemployment rates for males, females and total (left), Female and male employment to population ratios and labour force participation rates (right), 1990-2022



Source: ILOStat, PAL Calculations

One reason for the rise in female unemployment is that only one-third of the jobs created in the manufacturing sector are filled by women. Although the labour force is growing slowly, the percentage of new job openings being filled by females has not seen a corresponding increase. Between 2010 and 2020, the labor force increased by 8.7 million, 47% of whom were women. Yet, over the same period, employment grew by 8.2 million, with women making up just 43% of the new jobs. These ratios were considerably lower in the manufacturing sector. Women accounted for only 36 percent of the 1.9 million increase in manufacturing employment, which was lower than the 43 percent in total employment recorded for Türkiye. As a further telling statistic, 94 percent of men entering the labour force are able to find work, compared to 86 percent for women. This underlines the challenges faced by women in finding employment, despite being active job seekers.

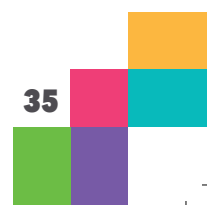
Table 4: Increase in total employment, and the share of women, 2010–2020

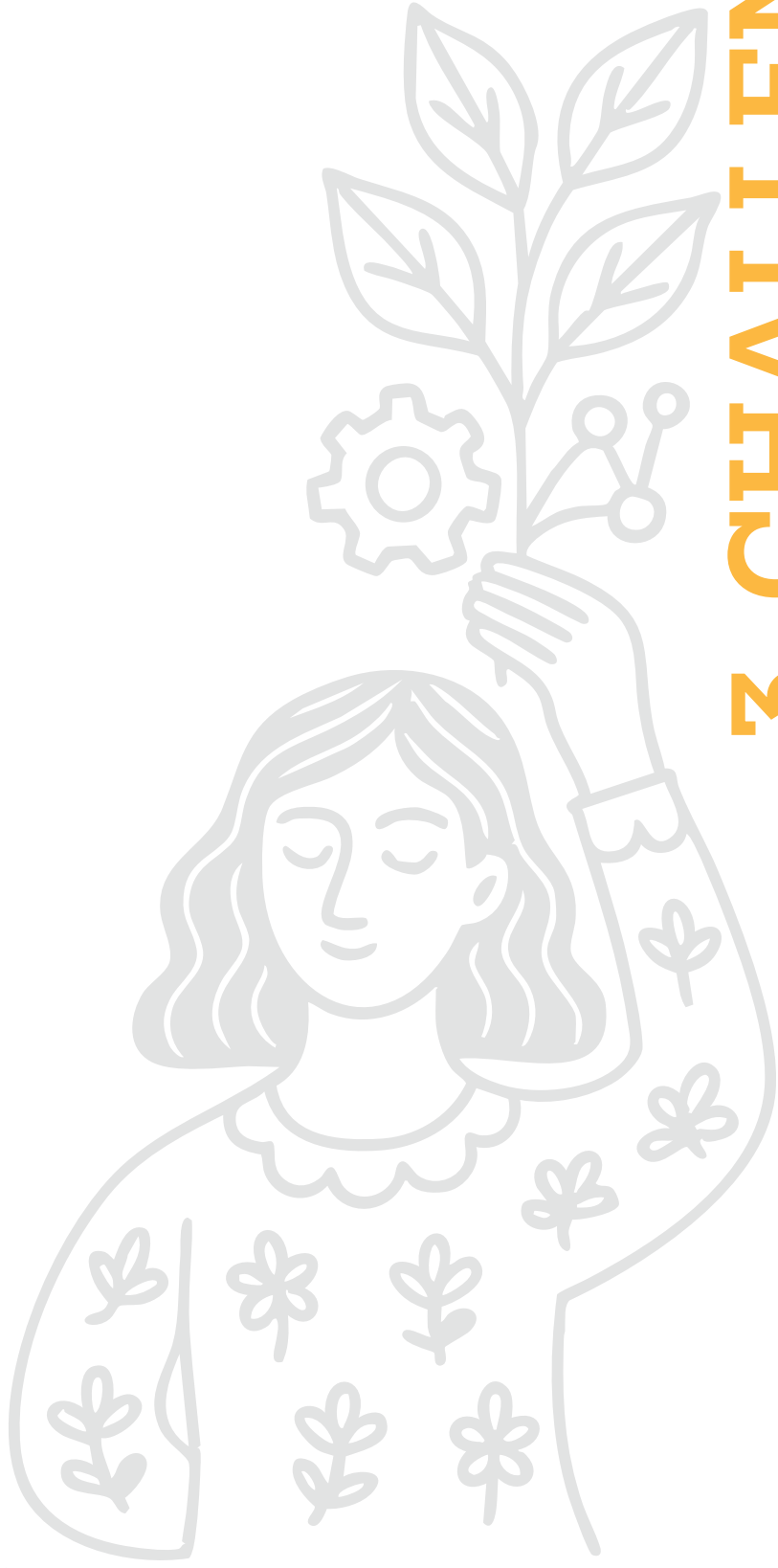
	Increase in women's emp. (2010-2020), thousand	Women's share in total increase	Increase in employment (2010-2020), thousand
Total	3,510	43%	8158
Public Administration, Community, Social and other Services and Activities	1,845	61%	3021
Trade, Transportation, Accom. and Food, and Business and Administrative Services	1,582	47%	3373
Manufacturing	700	36%	1942
Construction	35	8%	414
Mining and quarrying; Electricity, gas, and water supply	28	12%	225
Agriculture	-680	83%	-817
	Increase in women LF (2010-2020), the	Women's share in total increase	Increase in total LF (2010-2020), thousand
Increase in active labour force	4,090	47%	8693

Source: ILOStat, PAL Calculations

Note: These numbers include people in both informal and formal employment, and so may differ from the employment figures published by the Social Security Institution

Despite recent positive developments, the persistently low level of women's employment suggests that gender parity in the labour market is unlikely to be achieved before the 2050s unless effective policies are put in place. Recent years seen a marked improvement in women's employment due to the growth of the service sector and increased urbanisation, as highlighted in Chapter 2.3. However, projections based on the compound annual growth rate (CAGR) and current trends indicate that gender parity in the manufacturing sector and in overall employment in Türkiye is unlikely before 2052 and 2058, respectively. Even under the hypothetical scenario in which all newly created jobs are filled by women, parity in the manufacturing sector and the overall Turkish labour market would not be reached until 2036. This illustrates the depth of the existing gap. While an accelerated pace would significantly shorten the timeline, it remains unlikely under the present conditions.





3 CHALLENGES AND MAIN ISSUES

3. CHALLENGES AND MAIN ISSUES OF WOMEN'S EMPOWERMENT IN MANUFACTURING INDUSTRY

This chapter presents the core findings of a desk study, providing an overview of the challenges and fundamental issues related to WE in manufacturing. The chapter begins with an investigation of the labour market dynamics from a gender perspective and an evidence-based discussion of such issues as educational attainment, changing household structures, and the care economy, skills gap and wage gap. The chapter further assesses the potential for further improvements to WE with a detailed discussion of various sub-sectors and their relative performance in terms of female employment growth.

3.1. Socio-Economic Factors and Main Issues

There are multiple factors within Türkiye's economy challenging the participation of women in the manufacturing sector, including educational attainment, care responsibilities and economic informality. This section explores the key issues affecting the representation of women in the manufacturing sector, beginning with an analysis of education as a foundational factor facilitating entry to the labour market. The report then examines how the unequal distribution of reproductive labour and care work within the patriarchal family structure, along with the limited investment in care facilities and the care economy, limit the employment opportunities available to women. Also under scrutiny are the gender norms that contribute to inequalities in the work experiences of women and the impact of informal labour. All of the above factors contribute to the clarification of the challenges and limitations affecting the participation of women in Türkiye's manufacturing sector.

Many previous studies have reported on the significant gender disparities in working life that shape the participation of women in the labour force. Upon entering the labour market, women often encounter predefined roles and tasks.²⁴ Furthermore, sectoral, occupational and work patterns tend to be horizontally segregated by gender. In the industrial sectors, women are more frequently employed in secondary positions that are typically temporary or part-time, and characterised by lower wages, job insecurity, poor working conditions, limited opportunities for advancement, weak trade unionisation and a greater prevalence of unskilled labour roles.²⁵ Women's skills are often undervalued, as skill definitions are generally influenced by gender biases²⁶ and traditionally male-dominated ideological perspectives.²⁷ As a result, women are more commonly employed in unskilled labour positions. Even within the same occupational categories, they tend to be concentrated lower in the workplace hierarchy, reflecting the horizontally segregated job structure.²⁸

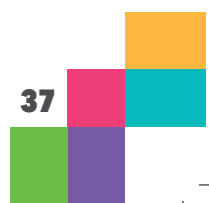
²⁴Ecevit, 1998

²⁵Sinclair, 1991; Barrett, 1995

²⁶Philips & Taylor, 1980

²⁷West, 1989; Cockburn, 1988; Walby, 1992

²⁸Cockburn, 1988; Barrett, 1995; Alvarez et al., 1996

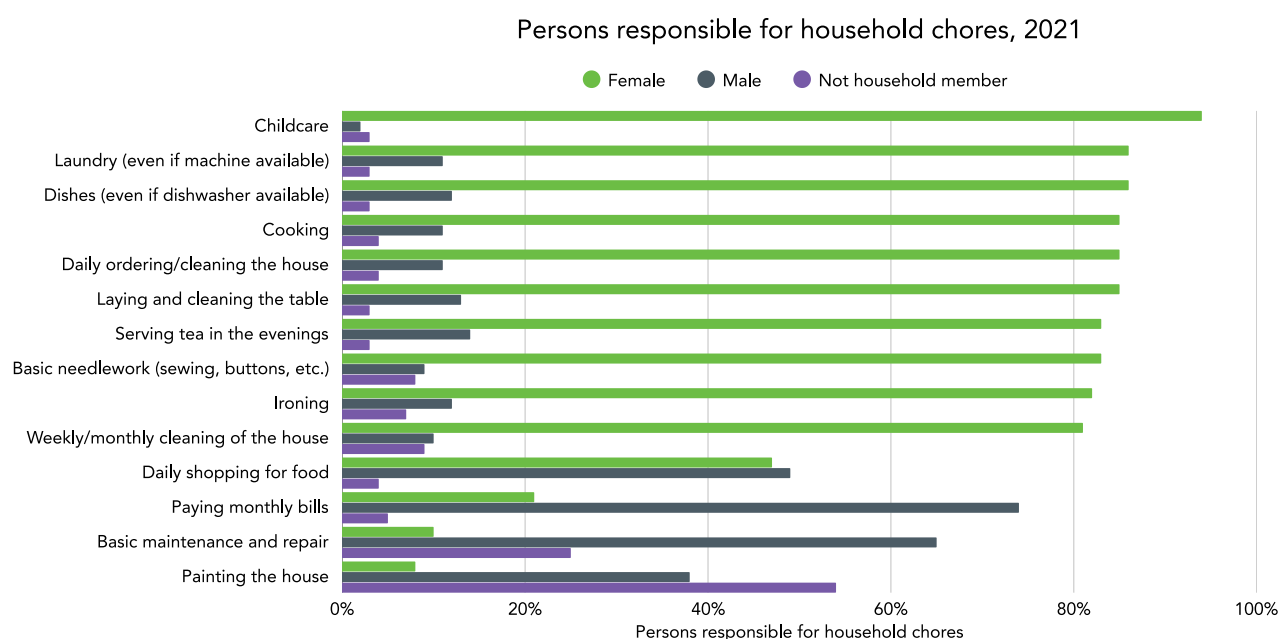


3.1.1. Gender Inequality in Domestic Responsibilities and Care Work

In most countries, domestic responsibilities of men and women are highly unbalanced, and Türkiye is no exception. In Türkiye, women spend on average 3.8 times more time than men engaged in care-related activities, while globally, this ratio is 1.7 times in the Americas and 4.7 times in the Arab States.²⁹

In Türkiye, household chores are predominantly seen as the responsibility of women within the patriarchal family structure. Some 94 percent of society considers women to be primarily responsible for childcare, and this perception extends also into other household chores, excluding shopping, bill payments and maintenance/repair work, for which the rate is around 80 percent. This division of household chores clarifies the gendered nature of domestic responsibilities. In 94 percent of households, childcare is provided by women, while women are responsible for laundry and dishwashing in 86 percent and cooking and cleaning in 85 percent. Additionally, in 81 percent of households, women are responsible for weekly/monthly cleaning. One chore that shows a more balanced distribution is daily shopping for food, which is shared almost equally between women (47%) and men (49%). In contrast, men assume a dominant role in financial and maintenance-related tasks, being responsible for paying monthly bills in 74 percent of households, and for basic maintenance and repairs in 65 percent. External service takes a significant share in certain activities, particularly house painting, some 54 percent of which is carried out by non-household members. These findings suggest that while traditional gender roles persist in many aspects of household labour, certain tasks exhibit have a more equitable or externalised distribution.

Table 5: Persons responsible for household chores, 2021

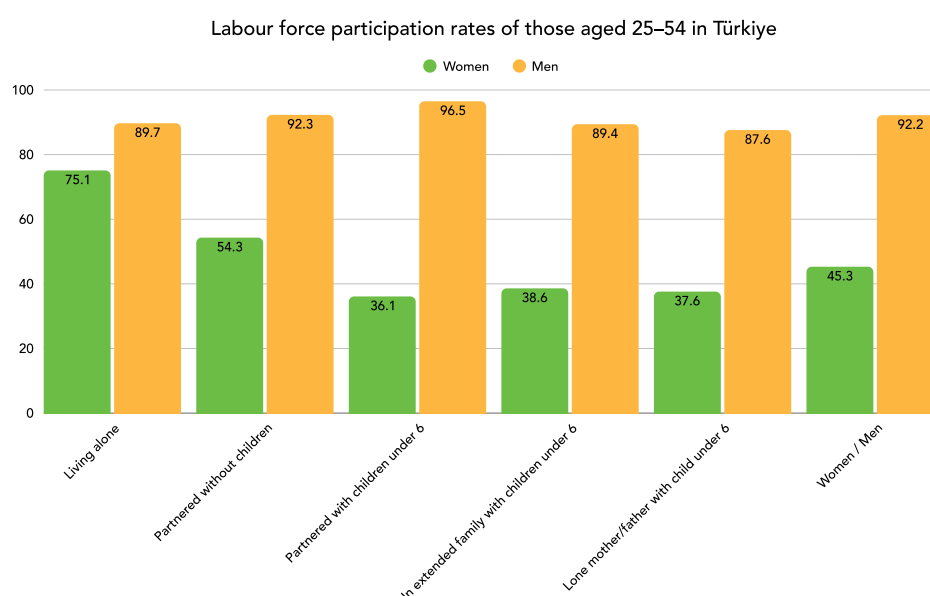


Source: TurkStat, Türkiye Family Structure Survey, 2021

²⁹ ILO, 2018

The imbalance in the distribution of care responsibilities places severe limitations on the participation of women in the labour force. In Türkiye, 30.5 percent of women aged over 15 are absent from the labour force due to housework. In contrast to men, the labour force participation rates of women vary significantly depending on the household type. The prime-age (25–54) labour force participation rate of women living alone (75%) is much higher than the overall rate for women (45%), although there is still a gap between women and men. The rate of men living alone is almost 15 percentage points higher than women. However, [CNE3]The labour force participation rate of women who live together with a partner, children or extended family members falls to 36 percent, the while that of men increases. On the other hand, living with partners but without children increases the labour force participation rate of women to 54 percent, while the equivalent for men remains high at 92 percent. These trends suggest that the labour force participation of women is notably constrained when in partnered households, especially when children are present, while the participation of men remains high or even increases in similar situations. In Türkiye, having young children significantly affects the participation of women in the labour market. The employment rate of women with children aged 0–3 years is just 28 percent, while for men in the same situation it reaches 90.5 percent.³⁰ The picture changes for those without children, with employment rates increasing to 56 percent for women, and declining to 78 percent for men.³¹ The contrast in these figures is clear evidence of the fact that caregiving responsibilities continue to fall disproportionately on women, limiting their opportunities to remain in or return to work, while men’s employment is less influenced by family circumstances.

Figure 14: Labour force participation rates of those aged 25–54 in Türkiye by gender and household type (2022)



Source: ILO, TurkStat Household Labour Force Survey, PAL calculations

³⁰Turkish Statistical Institute (TurkStat), 2023

³¹Ibid

It is estimated that unpaid work in Türkiye accounts for as much as 3.5 percent of the country's GDP. The total volume of paid work in Türkiye's care economy is 6.5 billion USD, equivalent to approximately 0.8 percent of Türkiye's GDP in 2019. In contrast, the total volume of Türkiye's unpaid work is around 27.4 billion USD, which is equal to 3.5% of the country's GDP.³² According to the same study, in an ideal scenario, based on convergence with developed economies, the successful implementation of care policies and the development of infrastructures, the participation of women in the labour force could rise to 52.5 percent (Table 6). Under such a scenario, 900,000 new jobs would be created in the care sector, leading to a diversification of the employment opportunities in the fields in which women are currently less represented than men.

Table 6: Size of Unpaid Care Economy and Future Scenarios

	Türkiye in 2019–2020 Baseline	Türkiye in 2040 Base Case Scenario	Türkiye in 2040 Ideal Case Scenario
Female labour force participation rate (%)	34.4	48.8	52.5
Care workers (number of paid jobs, thousand)	307	414	1,219
Care workers (% of care demand)	2.9	3.6	10.4
Size of paid care economy (as % of GDP)	0.85	0.95	1.84
Size of unpaid care economy (as % of GDP)	3.52	3.45	2.24
Share of paid segment in total care economy (%)	19	22	45

Source: Oxfam-KEDV & PAL (2020)

The unequal distribution of care responsibilities within households contributes to gender disparities in the labour market in various ways. Under the gender-based division of labour, domestic work and caregiving are traditionally perceived as unpaid responsibilities to be undertaken by women, which in turn affects their labour force participation. Gender-related inequalities in the distribution of domestic work among family members, along with the lack of affordable and accessible institutionalised care services, hinder labour force participation and often push women into the secondary labour market, which is characterised by part-time, low-wage, insecure, and informal employment. Additionally, the limited access to occupational and workers' organizations and unions as well as, social and professional connections that are not part of formal structures further restricts the professional opportunities open to women. These structural factors are linked to disparities in work performance evaluations, career advancement, and the persistence of vertical segregation and pay inequalities. Societies have faced significant economic and social hardships related to the declining labour force participation, reduced productivity, deteriorations in job quality and increased income inequalities, all of which can contribute to broader social unrest.³³

³²Oxfam-KEDV & PAL, 2020.

³³ILO, 2018

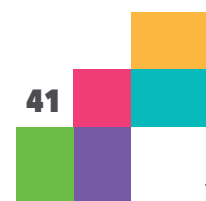
- » The recognition, redistribution and reduction of unpaid care work (3R strategy³⁴) is being discussed as a key policy intervention. “Recognition of care” involves understanding the role and significance of care work in the promotion of social well-being, economic growth and the participation of women in the labour market. Care work, carried out primarily by family members – especially women – is generally unpaid labour.
- » Activities within households and communities include child care, as well as care of older adults, people with disabilities and the sick, as well as such domestic chores as cooking, cleaning and managing household needs. Such roles are vital for personal well-being and the overall functioning of society. While reproductive labour does not directly generate market-based economic value, it plays a fundamental role in supporting the labour force and sustaining economic activity. In this regard, recognising reproductive work as an integral part of the production system is important in ensuring its value is acknowledged in economic frameworks and policy discussions.
- » Recognising the significance of care work also necessitates its redistribution in support of a sustainable economy. A key aspect of this redistribution is the promotion of gender-equitable divisions of domestic responsibilities within households. This necessitates the establishment of a strong social infrastructure based on investments into accessible, high-quality and affordable care services, and serves as a crucial economic intervention that is aligned with the “Purple Economy” concept. Just as the green and blue economies integrate environmental costs into production and consumption models, the Purple Economy focuses on the sustainable satisfaction of human needs through redistributions of the costs of care, and their incorporation into the broader economic system.³⁵ This concept requires interventions to improve the engagement of women in the labour market on equal terms with men, as much as calling for interventions to increase the engagement of men and the state in caregiving to the same extent as women.³⁶
- » Valuing and potentially compensating for unpaid care work can be considered complementary tools for advancing the economic inclusion of caregivers, providing them with financial independence and recognition within the economic system, as suggested by rational choice theory. Such recognition can lead to a more balanced division of care responsibilities between genders and across society, on the conditions that it complies with the purple economy, and does not force women to undertake caregiver roles, thereby legitimising their status as caregivers. It also highlights the need of infrastructure and services that reduce the care burden, such as childcare facilities and healthcare services, and encourages a more equitable distribution of unpaid work.

The recognition, reduction, and redistribution of care work will allow women and men alike to access services and participate in more equitable labour structures. The establishment of policies that promote balance between one’s working and personal life is essential for ensuring domestic responsibilities are shared equally. Additionally, creating equal employment opportunities for both women and men allows individuals to fully realise their professional potential. Accessible institutional services such as childcare, elderly care and support for people with disabilities play a crucial role as public responsibilities, and can serve as key principles in support of the participation of women in the labour market on equal terms.

³⁴Ibid

³⁵UN Economist Network, 2022

³⁶Ilkkaracan, 2023



3.1.2. Assigned Gender-Based Roles and Stereotypes

The social dynamics influencing the participation of women in the economy are closely linked to the gender-based social structures that shape the stereotypes and roles assigned to women and men. These stereotypes influence the expectations of women and men regarding their employment conditions and how their labour power is utilised. Gender stereotypes emerge out of social value systems, and include generalised assumptions related to gender-based roles, skills and characteristics. These assumptions often overlook individual differences, presenting a uniform view that can limit the perspectives of societal roles. When embedded within gender-based power relations, such stereotypes may reinforce the dominance of one gender over another, particularly in patriarchal societies, thus shaping perceptions and judgments. This can contribute to the emergence of social, psychological and economic barriers affecting the ability of individuals to make independent choices, including those related to work and employment. The gender stereotypes inherent in society can be seen in various aspects of social life and can contribute to disparities in which certain groups hold privileged positions, while others face disadvantages. Furthermore, perceptions of marriage and gender roles often intersect with discriminatory attitudes toward the participation of women in the workforce, reinforcing such disparities.

Women take on most of the caregiving roles in societies around the world, while men are more commonly engaged in income-generating activities within the family. In male-dominated societies, women are often expected to marry, have children and assume full responsibility for the physical and emotional support of family members, including children, older family members and those with disabilities. Conversely, men generally avoid such societal expectations, and often enjoy greater autonomy in making decisions about their productive potential and labour power. Women, on the other hand, face barriers that limit their career advancement and professional opportunities.

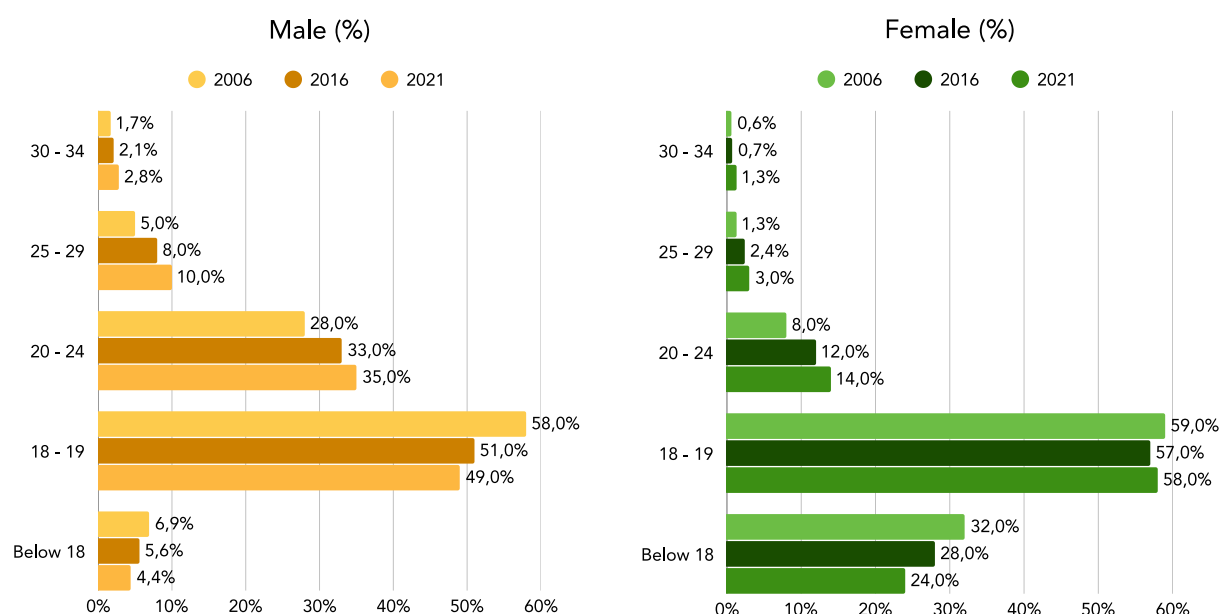
Although the average age of first marriage and societal perceptions surrounding gender roles may not be directly linked to labour market dynamics, they maintain a strong association with the attitudes towards the participation of women in the labour force. The perception of gender equality among individuals in society manifests in many areas of social life. [CNE4] Perceptions of marriage and the role of women in society directly overlap with and reinforce attitudes towards the participation of women in the workforce.

Transitioning into marriage often accelerates the detachment of women from the workforce, whereas for men, it often marks the beginning of their entry into employment. This shift is influenced by marital status, and is strongly reinforced by the onset of motherhood and childcare responsibilities, which sharply reduce the labour force participation of women, particularly when there are children under the age of 3 years.³⁷ When the average age of marriage of women and men is considered, the impact of marriage on the participation of women in economic life becomes even more profound. The fact that women tend to marry younger than men further reinforces this effect. In 2021, 58 percent of women aged 18–19 were married, compared to 49 percent of men, highlighting the higher prevalence of early marriage among women. The gap is even more significant below

³⁷Memiş et al., 2012; Paull, 2006; Kılıç & Öztürk, 2014

the age of 18, with 24 percent of women getting married before the age of 18 years, compared to only 4.4 percent of men. In the 20–24 age group, 35 percent of men are married, whereas this rate is only 14 percent for women. This divergence continues in older age groups, with 10 percent of men marrying between the ages of 25 and 29 years, compared to just 3 percent of women. These differences highlight a persistent societal norm, based on which women are expected to marry at a younger age than men and where marriage and childbearing continue to limit the sustained participation of women in the workforce.³⁸

Figure 15: Age at first marriage, Female and Male, Türkiye, 2006, 2016, 2021

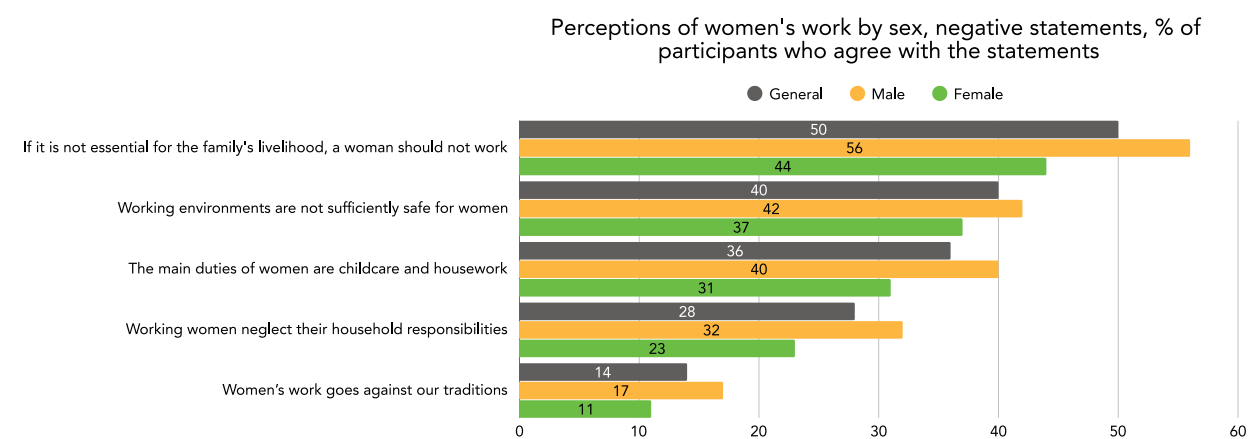


Source: TurkStat Family Structure Survey, PAL Calculations

There are gender biased concerns and perceptions about women's work that are shared by both men and women. The most prominent of these is that if a woman's income is not essential for the family but rather only supplements the family income, she should not work, which is an opinion that is shared by 56 percent of men and 44 percent of women (50% on average) (Figure 16). The safety of work environments for women is also a matter of concern, voiced by 42 percent of men and 37 percent of women. More strikingly, 40 percent of men and 31 percent of women consider the main duties of women to be childcare and housework. There is a common belief held by 32 percent of men and 23 percent of women that working women may neglect household duties. Finally, there is a less common view that women's work goes against traditional values, with 17 percent of men and 11 percent of women agreeing. Overall, these percentages suggest that the traditional view of gender roles in Türkiye still prevails, primarily among men, particularly concerning the participation of women in the workforce and their perceived primary duties at home. In this context, transforming the gender-based judgments, perspectives, and perceptions predominantly held by men emerges as an important area of concern for empowering women in the manufacturing sector.

³⁸Ekiz Gökmen, 2016; Dayıoğlu & Kırdar, 2010

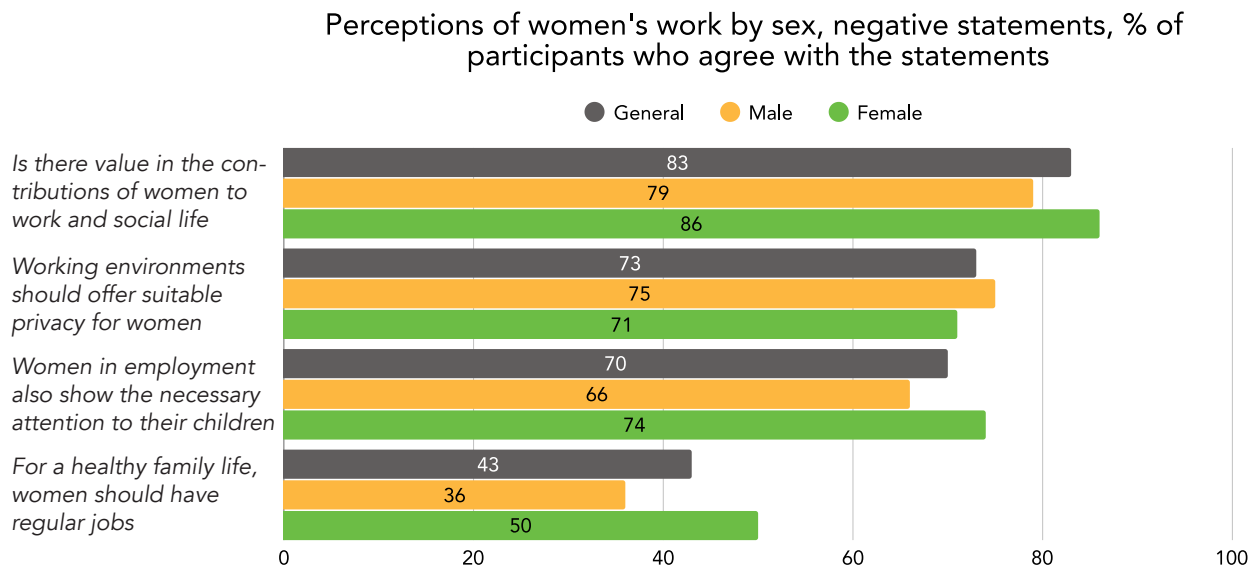
Figure 16: Perceptions of women’s work by sex, negative statements, % of participants who agree with the statements, Türkiye, 2021



Source: TurkStat Family Structure Survey, PAL calculations

In Türkiye, while prejudices and gender stereotypes still exist, there is substantial support for the participation of women in the workforce. Women tend to show more support for the participation of their sex in the labour force. Figure 17 below shows that a significant majority of both men (79%) and women (86%) who recognise the value of women in employment and the contributions to social life. Similarly, the majority also believe that working women can still provide the necessary attention to their children, with greater approval among women (74%) than men (66%). More specifically, there is notable support for the claim that women should have regular jobs to contribute to a healthy family life, with 50 percent of the female participants agreeing, compared to 36 percent of the male participants. There is also a strong consensus on the need for a suitable work environment that respects the privacy of women from both genders, with slightly higher approval among men (75%) than women (71%), indicating a shift towards more progressive attitudes regarding gender equality in the workplace.

Figure 17: Perceptions about women’s work by sex, supportive statements, % of participants who agree with the statements, Türkiye, 2021



Source: TurkStat Family Structure Survey, PAL calculations

In Türkiye, 87 percent of women express a desire to work in paid employment, and 53 percent prefer working conditions that allow them to balance both their professional careers and family and household responsibilities. A report published by the International Labour Organization (ILO) and Gallup reveals the level of interest among women in participating in paid employment. While 70 percent of women globally express a desire to work in paid jobs, this figure is 87 percent in Türkiye. Additionally, 92 percent of women and 84 percent of men support the preference of women to find paid work outside their family responsibilities. In Türkiye, 53 percent of women prefer conditions that allow them to both work and manage family and household responsibilities, while only 1 in 10 women prefer to stay at home and focus solely on household and family care, compared to 2 in 10 women worldwide. Among men in Türkiye, 28 percent support the participation of women in paid jobs, while 32 percent prefer women to remain at home, and 34 percent favour a model in which women both work and take care of household responsibilities.³⁹

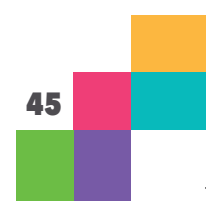
The WE Early-Career STEM Talent Survey of young university graduates reveals a lack of discrimination and bias among this demographic regarding working life. Among the participants of the survey (87% of whom are aged 19–24), 94 percent believe that family responsibilities are not solely the responsibility of women, and there is no significant difference between the male and female respondents in this regard. Over 90 percent of the respondents agree that women excel at adhering to rules and demonstrate greater perfectionism compared to men. The study revealed near-universal agreement with the statements that the professional skills and competencies of women are not inferior to men's, that the competencies of men and women are equally valuable, and that women are more capable than men at multitasking, again showing no meaningful differences between sexes. This suggests that this group views life through an egalitarian and bias-free lens, having internalised equality as a core perspective. That said, whether this positive outlook weakens as individuals gain more experience in the workforce, or whether it represents a significant generational shift, remains a topic requiring further exploration.

Table 7: Attitudes of Graduate Survey Participants Towards Women's Employment

	Female	Male	Overall	Female - Male Difference
Women are more successful than men in adhering to rules.	93%	90%	92%	3%
Women pay greater attention to detail than men.	94%	92%	94%	2%
Family responsibilities are not solely the responsibility of women.	94%	93%	94%	1%
Women can work in every position within the manufacturing sector.	94%	94%	94%	0%
Women's professional skills and competencies are not inferior to those of men.	94%	94%	94%	0%
The competencies of women and men are equally valuable.	93%	94%	93%	0%
Women and men possess different, yet complementary, skills and competencies.	94%	95%	94%	-1%
Women are more skilled than men at multitasking.	96%	97%	96%	-1%
Family responsibilities do not affect women's careers in the manufacturing sector	88%	90%	89%	-2%

Source: WE Early-Career STEM Talent Survey

³⁹ILO, 2016; ILO, 2017



In contrast to the positive attitudes of graduates, the company participants of the survey hold a different view of the employment of women in the manufacturing sector. While 57 percent of the surveyed companies stated that women do not plan careers in manufacturing, 90 percent of the female survey participants expressed openness to working in the sector. This discrepancy suggests that such perceptions among companies becomes more prevalent as the candidates integrate into the labour market. Additionally, 57 percent of companies believe that caregiving responsibilities hinder WE in manufacturing, and 56 percent think limited flexible and remote working options are significant barriers. These responses contrast sharply with the views of the young graduate survey participants. Although such opinions uncommon among large-scale companies, it is notable that they still exceed 40 percent, underscoring a persistent bias and a significant level of information asymmetry between the supply and demand sides of the labour market in the manufacturing sector. There is thus an apparent need to bridge this gap to and better align perceptions and opportunities.

Table 8: Attitudes of Company Survey Participants Towards the Employment of Women

Female candidates avoid career planning in the manufacturing sector.	57%
The fact that <u>the majority of</u> caregiving responsibilities fall on women hinders their empowerment in manufacturing.	57%
Limited flexible and remote working opportunities restrict the empowerment of women in the manufacturing sector.	56%
The lack of role models for women in manufacturing prevents their empowerment in the field.	56%
There is an insufficient pool of candidates to increase the number of female employees in the manufacturing sector.	56%
There is an insufficient pool of candidates to increase the number of female managers in manufacturing.	55%
Widespread societal perceptions of gender roles hinder WE in the manufacturing sector.	55%
The fields in which women are educated are unsuitable for manufacturing jobs.	52%
Women earning lower wages than men for similar jobs prevents their empowerment in manufacturing.	50%
The tendency toward informal employment among women limits their empowerment in the manufacturing sector.	49%

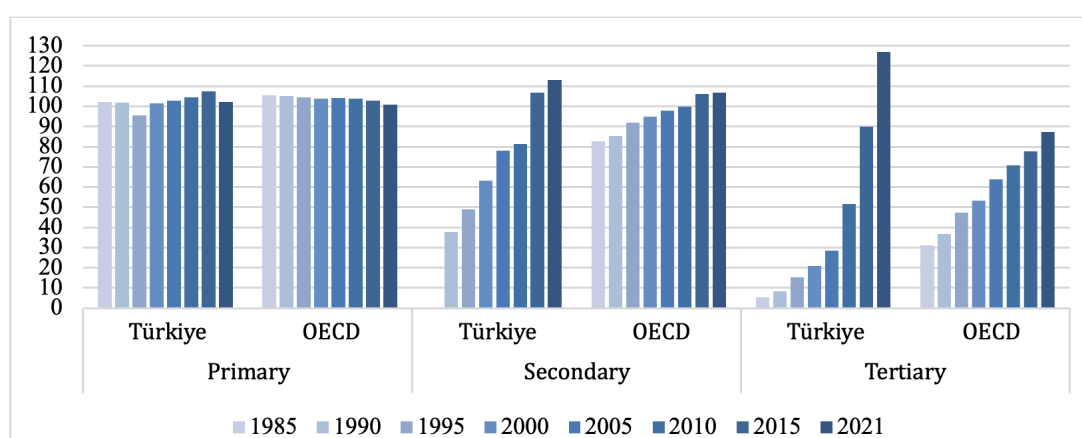
Source: WE Company Survey

3.1.3. Educational Attainment for Women

For women, education appears to be a driving force their for entry to the labour market. Education increases the demand for employment by women, and the number of women who participate in the workforce increases proportionally to their education level. The labour force participation rates for illiterate women in Türkiye, based on 2022 TurkStat statistics, is 13.9 percent, 27.1 percent for women with less than high school education, 36.1 percent for female high school graduates and 43 percent for female vocational or technical high school graduates. The labour force participation rate reaches the highest among women university graduates (68.8%).⁴⁰

The enrolment of females in school in Türkiye has witnessed a consistent increase across all levels since 1985, with the gross rate exceeding 100 percent⁴¹ [CNE5] for both females and males in 2021. A steady increase in the school enrolment of females in Türkiye has been observed at primary, secondary and tertiary education levels. Historically, the female enrolment rate at the primary level has been high, in parallel to the OECD rates, exceeding 100 percent. This indicates that female students of almost all ages are able to access primary education. Over a 30-year period until the 2020s[CNE6], secondary and tertiary enrolment rates have experienced significant growth, and eventually surpassing the 100 percent threshold in 2021. The female enrolment rate for secondary education has steadily increased from 38 percent in 1985 to over 100 percent in 2021, surpassing the OECD average. This increase should be attributed not only to a rise in the number of attending students, but the likely retention or re-enrolment of older students. In tertiary education, the rate of 5 percent started is much lower than the OECD average, but this figure reached 20 percent in 2000 and surpassed 100 percent in 2021. The overall trend shows that Türkiye's female enrolment rates at all levels of education have increased significantly over the period, indicating a shift towards gender parity in education. Official statistics of the Ministry of National Education and OECD data both show the same increasing trend, with a slight difference between the two. According to Ministry of Education data, in 2005, the participation rate of women in primary school was 92 percent and 75 percent in secondary school, and these rates had increased to 96 percent and 115 percent by 2021.⁴²

Figure 18: Trends in Primary, Secondary, and Tertiary School Female Enrolment, Türkiye, and OECD (Gross %), 1985–2021



Source: UNESCO Institute for Statistics (UIS), WDI, PAL Calculations

Gross: Total number of students enrolled in each level of education, without distinction for age, divided by the population of the age group that officially corresponds to that level of education.

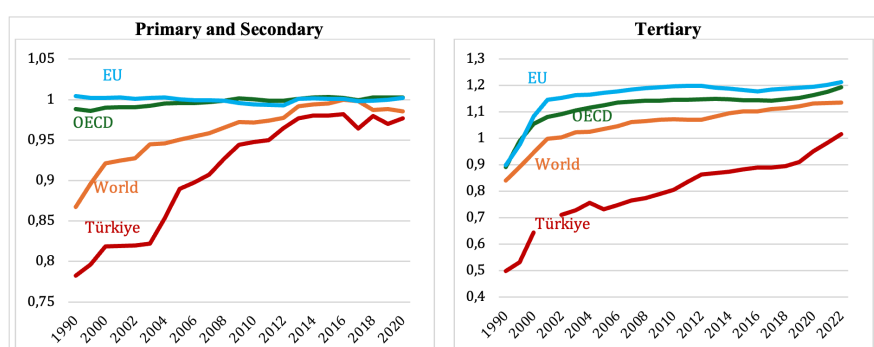
⁴⁰Turkish Statistical Institute (TurkStat), 2023

⁴¹School enrolment rates are calculated by dividing the number of students enrolled at a given education level by the population of the official age group for that level. These rates can exceed 100% because the number of enrolled students may include children who start school earlier than the official age, those who enroll later than expected, and those who repeat grades, resulting in a total higher than the population of the target age group.

⁴²Ministry of National Education Statistics

Türkiye's progress in education has notably narrowed the gender gap, especially in higher education, yet the overall enrolment of women still trails behind that of men. Figure 19 illustrates the Gender Parity Index (GPI)⁴³ for school enrolment in Türkiye from 1990 to 2020, and a comparison with the global average, the OECD countries and the European Union. The GPI for primary and secondary education shows that women in Türkiye have lower access to education than men, with an index rate starting below 0.85 in 1990. Over time, the rates for Türkiye have been approaching equivalence between men and women, indicating substantial progress in the efforts to bring gender equality to education. The GPI for tertiary education in Türkiye shows that the participation of women in higher education was significantly lower than that of men, with rate of 0.6 in 1990, but has increased significantly since then, becoming closer to equivalence after 2010. By 2020, women were accessing tertiary education at a higher rate than men. While the global and OECD GPIs have also increased, they started at a base that was closer to equivalence. Throughout the period in question, the EU has recorded consistently higher female participation rates in tertiary education than the other country groups.

Figure 19: School enrolment (gross), gender parity index (GPI)

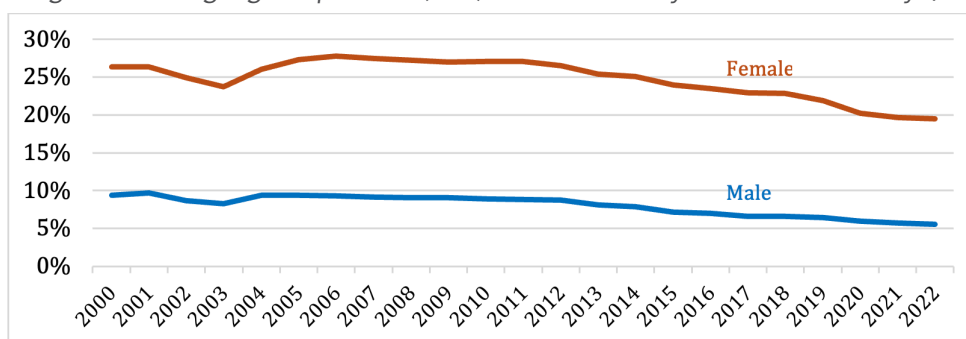


Source: UNESCO Institute for Statistics (UIS), WB DataBank

Note: Gender Parity Index (GPI) is a statistical measure that compares the ratio of female to male enrolments in education: a GPI of 1 indicates equivalence, while figures above 1 favour females and those below 1 favour males.

Despite the efforts to close the gender gap in education, a notable 19 percent of women in Türkiye remain without formal education as of 2022. Figure 20 illustrates the gender disparity in the working-age population with no primary education in Türkiye between 2000 and 2022. Although there has been progress in the educational inclusion of both sexes, the benefit has been more substantial for males. Males have a non-education rate of around 6 percent in 2022, while the rate for females is significantly higher at approximately 19 percent. This persistent disparity highlights that improvements in educational enrolment have yet to be fully translated into equal educational access in Turkish society. Furthermore, the current educational level of the population continues to reflect the historically lower female enrolment rates and the reduced participation of women in education in the past.

Figure 20: Percentage of Working-Age Population (15+) with No Primary Education in Türkiye, 2000–2022

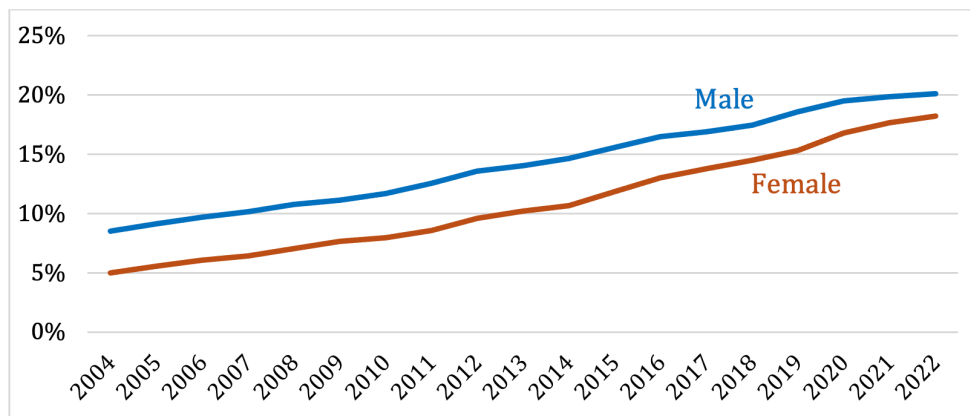


Source: ILOStat

⁴³Gender Parity Index (GPI) is a statistical measure that compares the ratio of female to male enrolments in education: a GPI of 1 indicates equivalence, while figures above 1 favour females and those below 1 favour males.

In Türkiye, the attainment of higher education has become more balanced across genders, with the percentage of working-age females with tertiary education having tripled to 18 percent between 2004–2022. Türkiye witnessed a steady increase in the percentage of the working-age population with tertiary education from 2004 to 2022 for both sexes (Figure 21). The percentage of females with tertiary education has risen from around 5 percent in 2004 to 18 percent in 2022, while for males an increase from 8 percent to 20 percent was seen in the same period. This trend suggests that the increase in the population with tertiary education has been relatively gender-balanced, although the increase for females has been greater than for males throughout the period in question. The trend in tertiary enrolment paints a positive picture for the educational qualifications of Türkiye’s future manufacturing workforce.

Figure 21: Percentage of Working-Age Population with Tertiary Education in Türkiye, 2004–2022

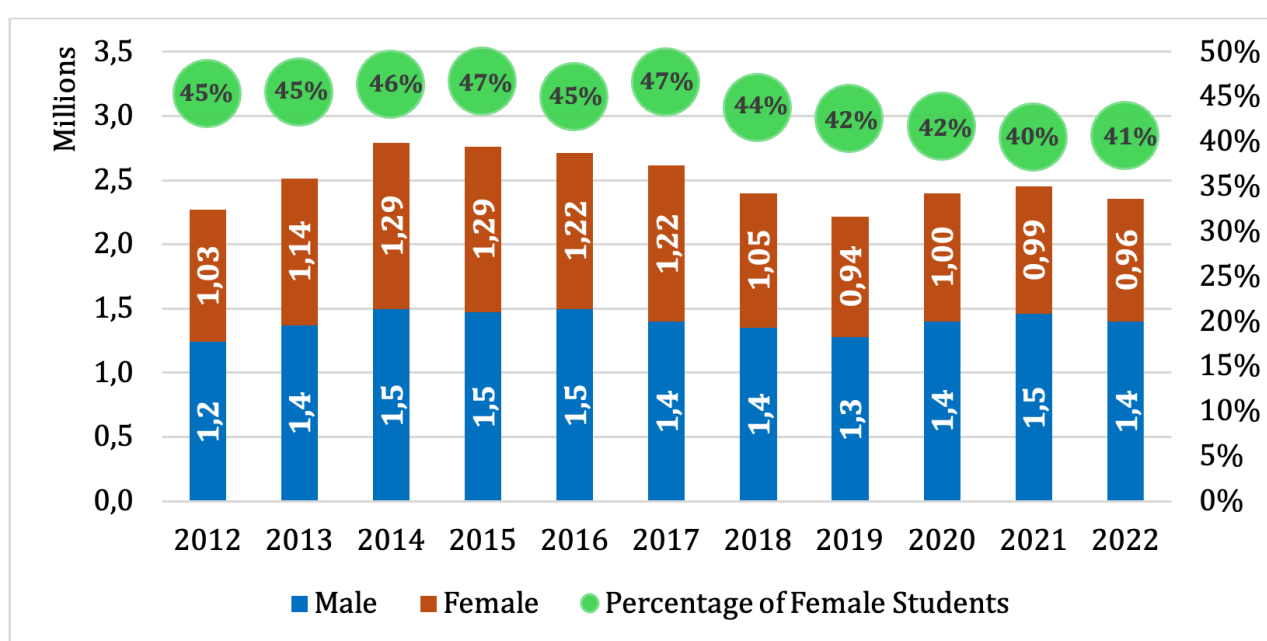


Source: ILOStat

Between 2017 and 2022, the percentage of female vocational high school students saw a decline from 46 percent to 40 percent, while the total number of students increased by 300,000 in the same period. One crucial factor affecting the participation and employment of women in the manufacturing sector is the low female enrolment in vocational training. In 2022, there were 6,021 Vocational High Schools in Türkiye, which are known to be favoured by students for their practical approach to education over theoretical learning. These schools are designed to train qualified personnel for a range of industries while providing the foundational knowledge and skills needed for university-level studies. The disparity between sexes in vocational education has been present over a decade, but a notable disparity has emerged in recent years. Male enrolment has reached over 1.4 million in the last 5 years, while female enrolment has remained consistently lower at under 1 million. Despite fluctuations, the percentage of female students in vocational high schools has seen an overall decrease from 45 percent to 41 percent in the last decade, reflecting the persistence of the differences between sexes in vocational education choices.

Female students in vocational high schools account for 44 percent of the student body according to data from 2012–2022. It should be noted, however, that female graduates of these institutions are much less likely to join the workforce, representing only approximately 28 percent of the vocational high school graduates in employment. In 2022, the male labour force participation rate stood at 71 percent, whereas female labour force participation rate was 35 percent. The labour force participation rate is notably higher among the males who graduate from vocational and technical high schools, at 81.5 percent, while this rate is just 43 percent for women who graduated from vocational and technical high schools. Women account for 50 percent of all secondary education students between 2012-2022, indicating gender parity in enrolment at this level. This figure, however, is only 44 percent in vocational and technical secondary education, both in terms of cumulative student numbers and number of graduates, indicating a lesser but still significant under-representation of women at this level and type. In the same period, the distinction between women and men is even more pronounced among the total vocational and technical school graduates entering the labour force, in which women account for only 28 percent (Table 9). This stark drop signals a substantial gap between female vocational and technical education graduates and their subsequent engagement in the labour market, in particular, and the manufacturing sector in particular.

Figure 22: Number of Vocational and Technical High School Students



Source: TurkStat

Vocational and technical high school description: An educational institution in Türkiye offering secondary-level programmes that provide students with academic knowledge and practical vocational and technical skills, preparing them for both higher education and direct employment.⁴⁴ These institutions offer specialised training in various fields, including information technologies, industrial automation, construction, health services, hospitality, finance, maritime industries, and more, allowing students to develop industry-specific competencies aligned with labour market demands.⁴⁵

⁴⁴Republic of Türkiye Ministry of National Education.

⁴⁵Republic of Türkiye Ministry of National Education, 2023

Table 9: Cumulative Number of Students and Estimated Number of Graduates, 2012–2022, Türkiye

Category	Female (thousand)	Total (thousand)	Female Share (percent)
Cumulative secondary education students	18.3	36.9	50%
Cumulative vocational and technical high school students	12.1	27.5	44%
Estimated number of vocational and technical high school graduates	3.0	6.9	44%
Estimated number of vocational and technical high school graduates in the labour force	1.3	4.6	28%

Source: TurkStat, MoNE, PAL Calculations

Note: Cumulative student numbers represent the total number of annual students, not the number of people enrolled in educational institutions.

The gender dynamics in tertiary STEM (science, technology, engineering and mathematics) fields have shifted by a ground-breaking 57 percent in 2022, with female graduates outnumbering males, even though disparities persist within certain sectors. STEM fields cover the special disciplines of science, technology, engineering and mathematics.⁴⁶ The number of graduates from STEM departments had exceeded 1 million by 2022, equating to 27 percent of all university graduates, having increased steadily from 87,000 in 2012, to reach 185,000 in 2022. Moreover, the percentage of female STEM graduates was 49 percent in 2012, but had reached 57 percent in 2022. While male students outnumbered female students between these years, the number of female STEM graduates exceeded the number of male graduates in 2022. In contrast, the number of male graduates in the fields of Information and Communication Technologies (ICT) and Engineering is higher than the number of female graduates, and the increase in male graduates within these specific fields has been greater than the increase among female graduates.

While the overall interest in STEM fields among female and male students is relatively balanced, men are still twice as likely to pursue degrees closely tied to the manufacturing sector, including engineering and ICT. The percentage of women among STEM students has remained almost constant over the last decade, in the range of 40–50 percent, but reached 57 percent in 2022. When focusing on more specialised STEM areas like ICT and engineering, which are more directly tied with the manufacturing sector, the rate of female participation remains around 33 percent. Among all female university graduates, 26 percent are STEM majors, but only 9 percent graduate from engineering and ICT departments. In contrast, while the percentage of male STEM graduates is 29 percent, 20 percent are from engineering and ICT departments. These figures reveal a strong male preference for the engineering and ICT fields that is double that of their female peers. A closer look at the distribution of STEM graduates reveals women predominantly in Welfare (82%), Biological and Related Sciences (71%), and Health (68%), with the lowest shares in Engineering (24%), ICT (28%) and interdisciplinary programmes involving ICT (30%). The Health field has the most female graduates, with a total of 243,511, while ICT has the lowest with only 3,263 female graduates.

⁴⁶Beşpınar, 2021

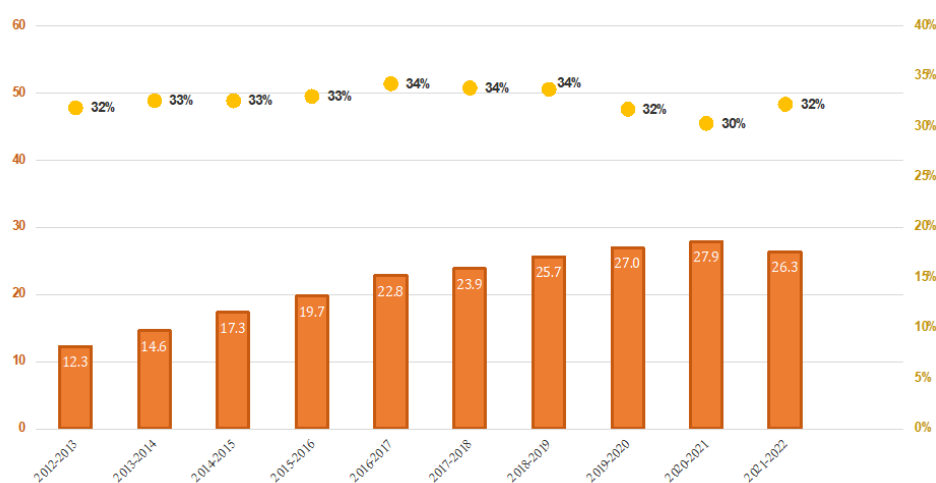
Table 10: Number of graduates from bachelor STEM programmes by gender, Türkiye, 2012–2022 cumulative

	Male (thousand)	Female (thousand)	Total Graduates (thousand)	Female share (%)
Health	114.1	243.5	357.6	68%
Welfare	15.0	68.6	83.6	82%
Physical sciences	41.8	38.7	80.5	48%
Mathematics and statistics	22.3	39.1	61.4	64%
Biological and related sciences	13.4	32.4	45.8	71%
Engineering	278.0	89.8	367.8	24%
Architecture and construction	105.9	59.3	165.2	36%
Interdisciplinary programmes and qualifications involving engineering, manufacturing, and construction	26.6	31.8	58.4	54%
Manufacturing and processing	20.0	28.8	48.8	59%
Interdisciplinary programmes and qualifications involving ICT	10.9	4.6	15.5	30%
Information and communication technologies	8.3	3.3	11.5	28%
	Male	Female	Total graduates	Female share
Total University Graduates	2,289	2,430	4,719	51%
STEM (Broad Description)	656	640	1,296	49%
Share of STEM in all graduates	29%	26%	27%	
Engineering and ICT graduates	450	217	667	33%
Share of Engineering and ICT in all graduates	20%	9%	14%	
Engineering and ICT graduates in labour force	321	76	354	22%

Source: YÖK (Higher Education Council), PAL Calculations

ICT: Information and Communication Technologies, Welfare: Child Care and Youth Services, Social Work and Counselling

Figure 23: Number of Female Engineering and ICT Graduates, 2012–2022

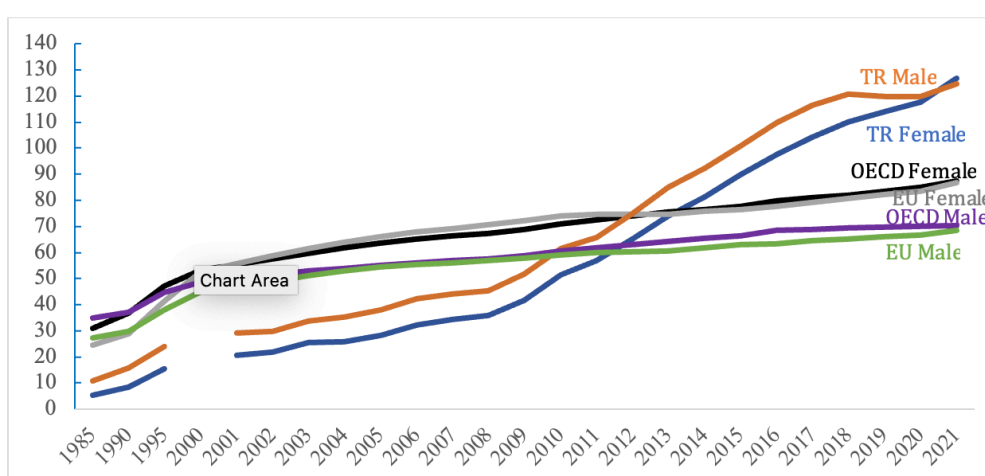


Source: YÖK (Higher Education Council), PAL Calculations

3.1.4. Skill Mismatch and Gender Disparities

Türkiye's tertiary enrolment rates have seen a dramatic rise over the last two decades, exceeding the OECD and EU averages, but contributing to skill mismatches in the labour market. Figure 24 illustrates the tertiary school enrolment rates (as a percentage of gross enrolment) from 1985 to 2021, comparing Türkiye's female and male rates to those of the OECD and the EU. The enrolment rate for women has significantly surpassed the OECD and EU averages, reaching 125 percent in 2021, while the OECD and EU averages are around 85 percent. In 2007, Türkiye's rate was about half that of the OECD average (Türkiye 35, OECD 70), however, a swift increase was observed due to the rapid increase in the number of universities throughout the country as well as rising participation rates. Despite their similar tertiary enrolment rates, men and women in Türkiye have different department preferences in university education that affects the available employment opportunities, particularly for the manufacturing sector.

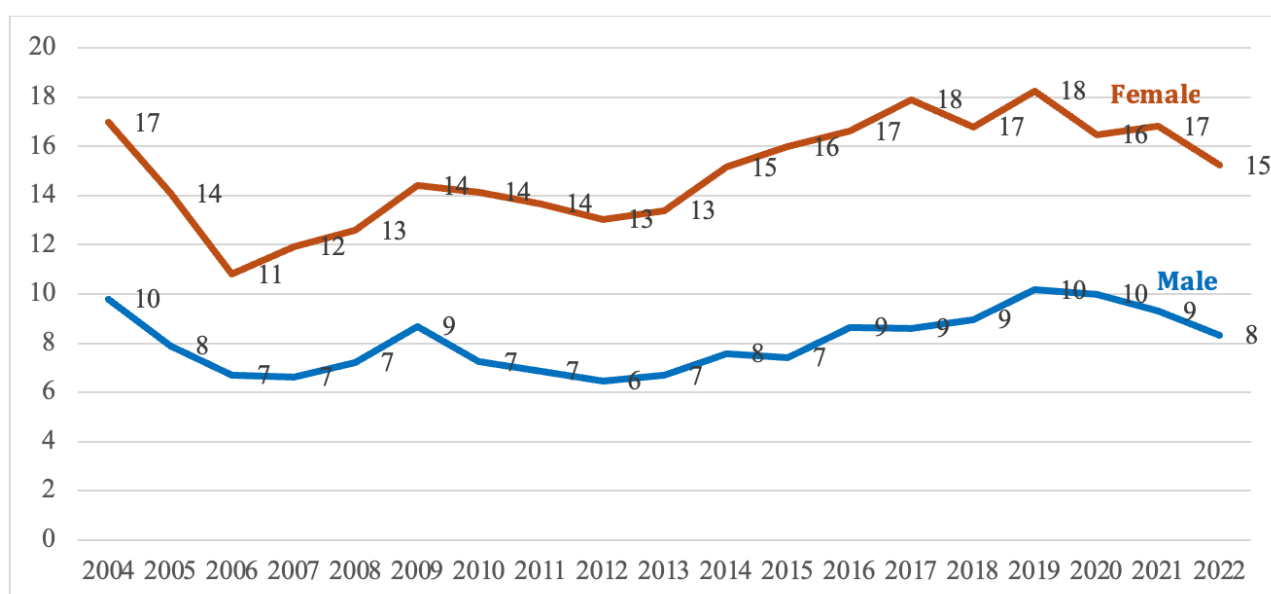
Figure 24: Tertiary School Enrolment Rate (gross%), female and male, 1985–2021



Source: UNESCO Institute for Statistics (UIS), WDI, PAL Calculations

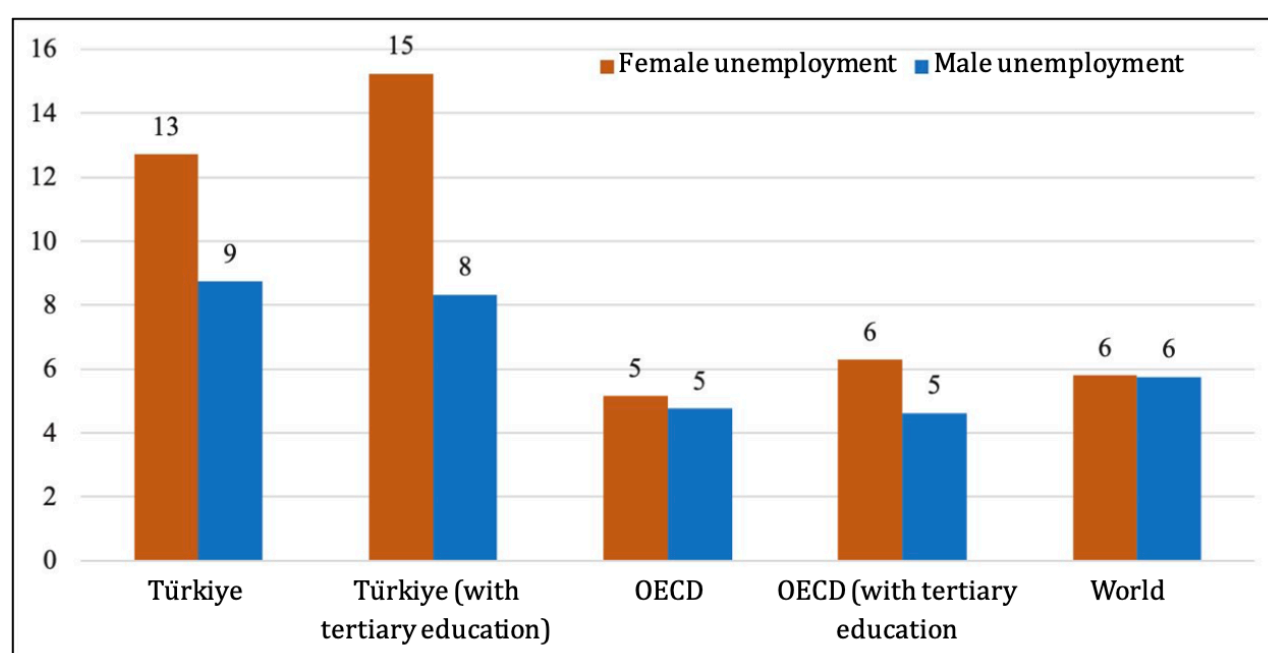
Despite their increased participation in tertiary education, unemployment has been more common among women than men for last 2 decades, likely as a result of skill mismatches. Although the tertiary education enrolment rate of women caught up with that of men in 2020, the unemployment rate of women was systematically higher than that of men between 2004–2022. Much of this may be attributed to the mismatch between the fields pursued by women in tertiary education and the needs of industry. While a similar gender gap in unemployment rates is observed for women at all levels of education, the gap widens further at higher education levels. It should be noted that no such gap is observed in OECD countries, where the gender gap in unemployment rates remains relatively consistent across the different levels of education.

Figure 25: Unemployment rate with tertiary education, % of female and male, 2004–2022



Source: ILOStat, PAL Calculations

Figure 26: Gender based unemployment rate, general and with tertiary education, 2022, %

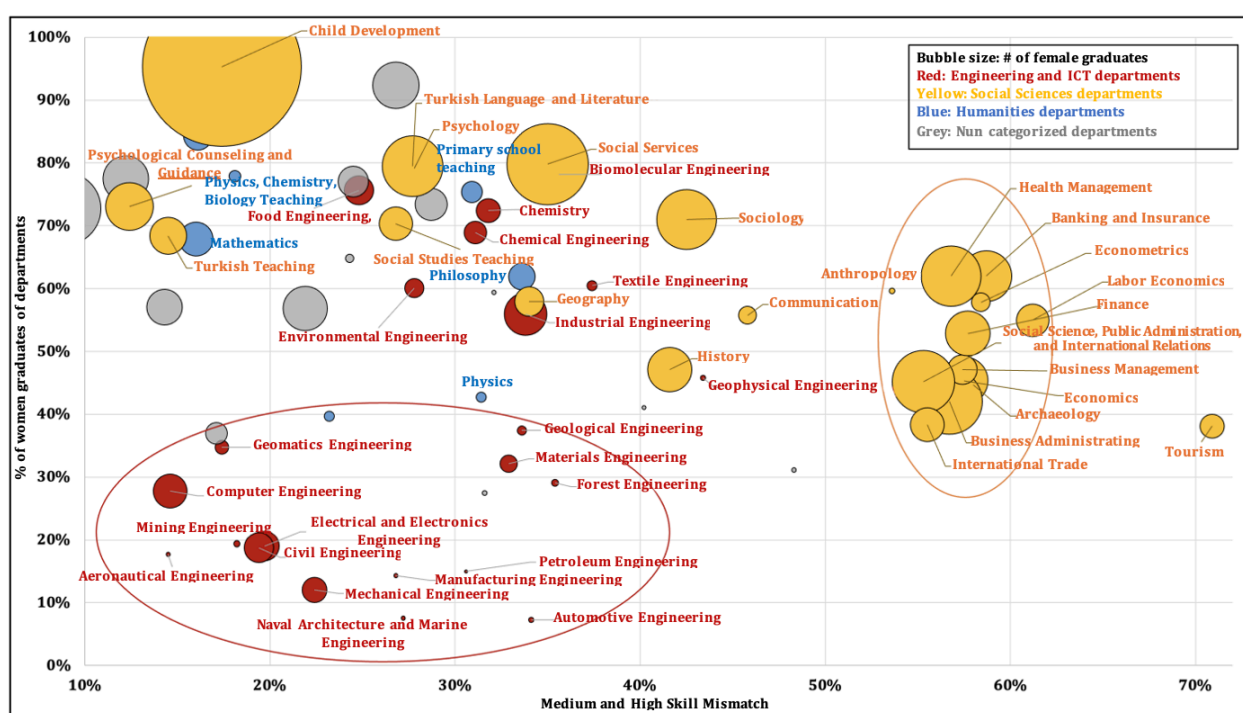


Source: ILOStat, PAL Calculations

Most women graduates in 2022 sought degrees in the social sciences or humanities fields rather than engineering or ICT. Skill mismatch refers to a situation where the skills possessed by workers do not match the skills required by employers. This mismatch can take various forms, such as when workers are overqualified or underqualified for the available jobs, or when their skills are not aligned with the needs of the labour market. In Türkiye, a significant proportion of women seek education in fields where they can gain soft skills and acquire broader information rather than engineering, for example, where they could obtain more technical and specialised information.

- » More than 50 percent of graduates of social science departments experience skill mismatch. Women accounted for 40–60 percent of the graduates from these departments in 2022 (see departments within the yellow circle on the right side of Figure 27). Majors with a lower degrees of skill mismatch in social sciences usually have limited career paths, but high employment opportunities, such as teaching, psychological counselling, etc.
- » Engineering and ICT departments have less than 50 percent skill mismatch and a low percentage of women graduates, at 10–30 percent. Graduates of these departments can find employment opportunities both in their respective fields and in other fields as they possess analytical and technical skills that can be useful for many industries (see departments within the red circle on the left side of Figure 27). These departments play a significant role as sources of labour for the manufacturing sector, in which employers often seek employees from more specialised fields.

Figure 27: Share of department graduates with skill mismatch (horizontal axis), share of women graduates (vertical axis), number of women graduates (bubbles)



Source: YÖK (Higher Education Council), CBİKO (Presidency of the Republic of Türkiye Human Resources Office), PAL calculations

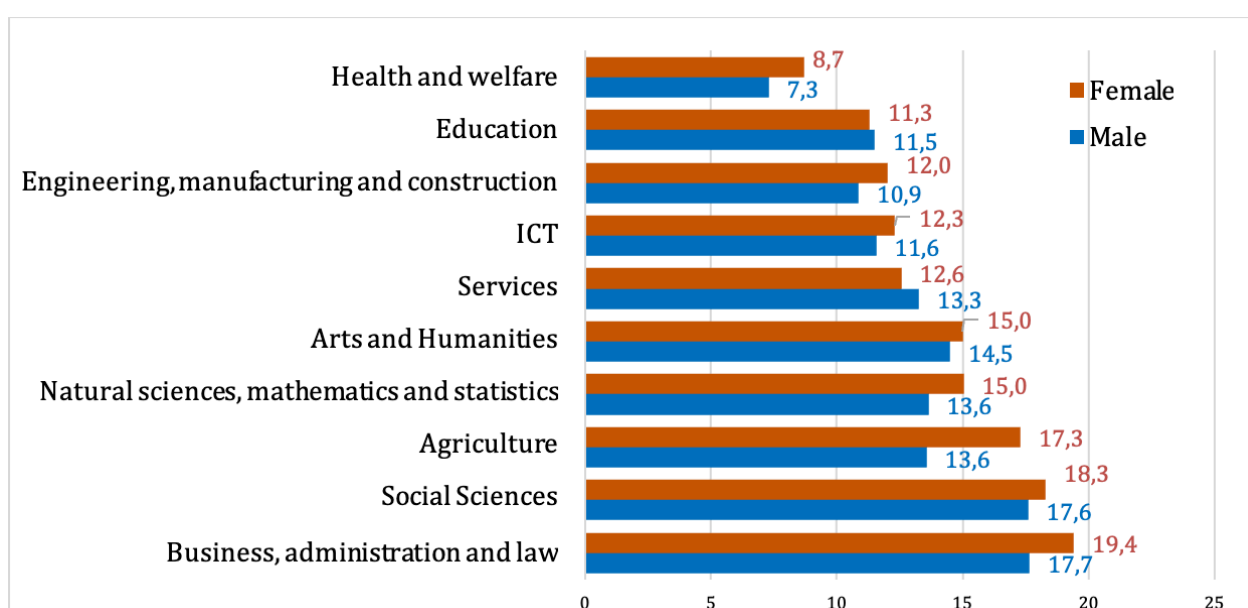
Note: Skill mismatch data obtained from CBİKO's UNİVERİ project. The project covers students who graduated from a 4-year programme between 2014 and 2019. The skill mismatch indicator is calculated based on the level of education of graduates and the skill requirements of their jobs. The International Standard Classification of Occupation (ISCO) and the skill set classification of the International Labor Organization (ILO) are used to match the required skills for a job with the education level of the individual. Skill levels range from 1 to 4, with 1 representing primary education and 4 representing higher education.

A skill mismatch occurs when there is a discrepancy between the skill level required for a job and the skill level of the individual. Skill mismatch is analysed at four levels: "No Mismatch" (0), "Low Mismatch" (1), "Mid-Level Mismatch" (2), and "High Mismatch" (3). A value of 0 indicates that the individual is employed in a job that matches their qualifications, while a value of 3 indicates that the individual is overqualified for their job.

This method evaluates only the match between the occupation code and the duration of training, and does not take into account skills acquired after employment or the cognitive characteristics and interests of graduates. The limitations of the method should be considered when interpreting the results. More detailed information on how skill mismatch was calculated can be found here: <https://www.cbiko.gov.tr/uploads/2022/06/uni-veri-yontem-eng.pdf>.

Based on TurkStat's latest press release related to higher education employment indicators, the fields in which graduates of both sexes take the longest time to find their first job are those related to business, administration and law, followed by social sciences. Based on TurkStat, the fields in which employment can be found fastest are health and welfare, education, and engineering, manufacturing and construction. It should be noted that women take longer to find their first job than men in all fields except education and services. Furthermore, it takes women graduates in the engineering, manufacturing, and construction fields 1 month longer than men to find a job. This is in line with the skill mismatch described earlier, indicating the lower skill mismatch and shorter time to find a job in fields with well-defined job opportunities. Fields that lack well-defined career opportunities suffer from greater skill mismatches and longer job searches.

Figure 28: Duration of search for employment of bachelor's degree graduates by fields of education and training, month, 2022

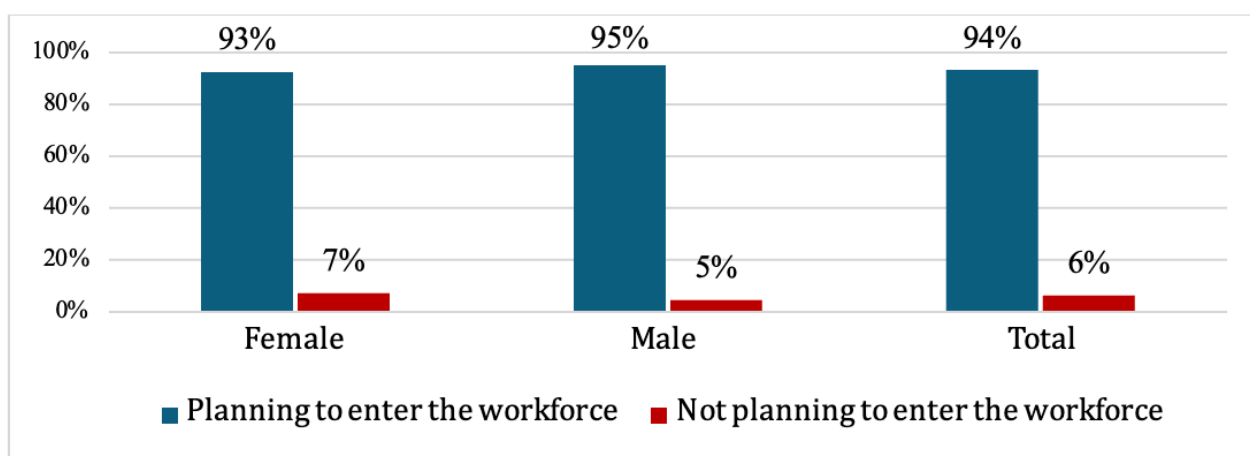


Source: TURKSAT

3.1.5. Early - Career STEM Talent's Perception of the Manufacturing

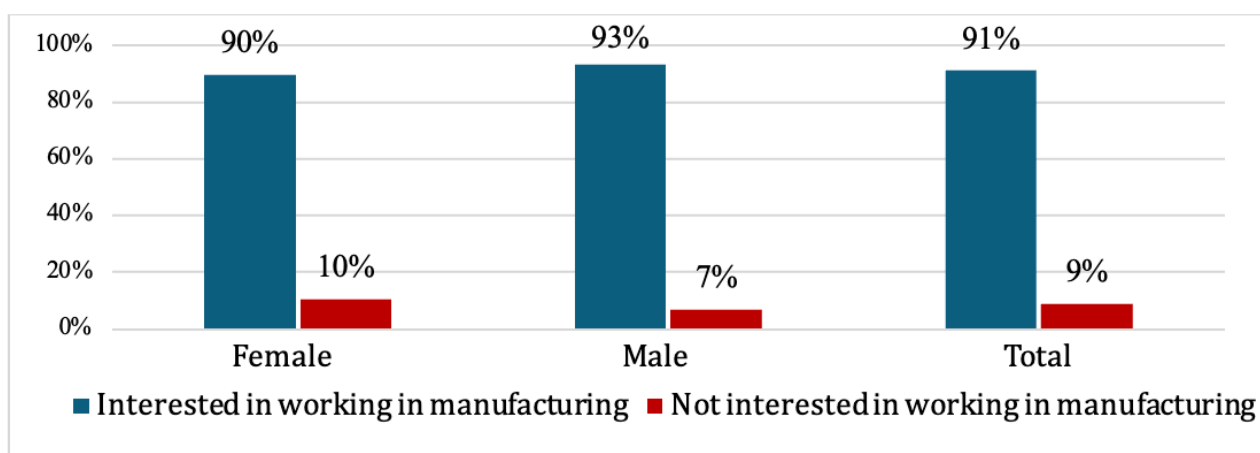
Recent STEM graduates and senior students nearing the completion of their studies maintain a highly positive attitude toward employment and the manufacturing sector. According to the WE Early-Career STEM Talent Survey conducted as part of this project, 94 percent of participants who were recently graduated from or who are in the last year of STEM fields stated that they planned to participate in the workforce, with rates of 93 percent for women and 95 percent for men. Additionally, 91 percent of those who plan to participate in the workforce expressed willingness to work in the manufacturing sector, with rates of 93 percent for men and 90 percent for women. The survey thus reveals a strong interest in the manufacturing sector among the participants, suggesting that the sector's challenges in attracting labour do not stem from the intentions of graduates, but rather emerge over time. It can thus be suggested that issues related to the retention or attraction of labour likely develop after graduation, rather than during the early stages of career planning.

Figure 29: Share of those planning to participate in the workforce



Source: WE Early-Career STEM Talent Survey

Figure 30: Share of those planning to work in the manufacturing sector



Source: WE Early-Career STEM Talent Survey

Early-career STEM talents perceive the manufacturing sector to be more advantageous than other sectors. The survey participants were asked to compare the manufacturing sector with other industries based on such criteria as working hours, physical demands, transportation accessibility, benefits, work environment, income, prestige, career development and social opportunities. Surprisingly, the participants gave the manufacturing sector an average rating of 3.1 out of 4, indicating a perceived advantage over other sectors. This finding suggests that students nearing graduation may lack sufficient knowledge of the market conditions. Notably, students with prior internship or work experience in manufacturing companies rated the sector's advantages lower, with scores dropping below 3.0.

Table 11: Evaluation of the advantages of the manufacturing sector over other sectors

	With manufacturing experience				Without manufacturing experience				Overall			
	Female	Male	Overall	F - M	Female	Male	Overall	F - M	Female	Male	Overall	F - M
Working hours	2.7	2.9	2.7	-0.3	3.0	3.2	3.0	-0.2	2.9	3.1	3.0	-0.2
Physical demands/challenges	2.7	2.9	2.8	-0.2	3.1	3.3	3.2	-0.2	3.0	3.2	3.1	-0.2
Transportation accessibility	2.8	3.0	2.9	-0.2	3.0	3.2	3.1	-0.2	3.0	3.1	3.0	-0.2
Benefits	3.3	3.4	3.3	-0.1	3.2	3.3	3.2	-0.1	3.2	3.3	3.2	-0.1
Work environment	3.1	3.4	3.2	-0.3	3.2	3.3	3.3	0.0	3.2	3.3	3.2	-0.1
Income	3.2	3.6	3.3	-0.3	3.3	3.3	3.3	0.0	3.3	3.4	3.3	-0.1
Prestige	3.1	3.4	3.2	-0.3	3.2	3.2	3.2	0.0	3.2	3.2	3.2	-0.1
Career development	3.3	3.5	3.4	-0.2	3.3	3.3	3.3	0.1	3.3	3.3	3.3	0.0
Social opportunities	2.9	3.1	3.0	-0.2	3.2	3.2	3.2	0.1	3.2	3.2	3.2	0.0
Average	2.9	3.1	2.9	-0.2	3.1	3.2	3.1	-0.2	3.0	3.2	3.1	-0.2

Source: WE Early-Career STEM Talent Survey

While women with no desire to work in the manufacturing sector consider all potential barriers to be influential, the two most significant barriers are the small number of female employees, managers and role models in the sector, along with the perception that these jobs are more suited to men. Among the women who were not considering employment in the manufacturing sector, 73 percent stated their belief that the jobs are better suited for men and the small number of female employees as the key reasons. Additionally, 70 percent commented on unsuitable work environments, the distance of manufacturing companies from their homes and transportation limitations. The lack of role models in the sector was also noted by 70 percent of respondents. Surprisingly, shift systems and working hours, often assumed to be major barriers, were ranked lower than other factors, including the low level of female representation, lack of role models and transportation difficulties. Other barriers limiting the employment of women in manufacturing include gender bias in education (66%), the low proportion of female managers (66%) and education misalignment (57%). Finally, such practical issues as the lack of daycare (50%) and low income (48%) were also deterrent factors.

Table 12: Reasons Why Women Do Not Considering Employment in the Manufacturing Sector, %

	% of women who agree with the statement
Manufacturing jobs perceived as typically male-oriented	73%
Small number of women employees in the manufacturing sector	73%
Challenging nature of the manufacturing work environment	71%
Distance of industrial companies from where I live	71%
Limited transportation options to industrial areas	70%
Lack of female role models in manufacturing	70%
Work environments not suitable for women	68%
Physically demanding heavy labour in manufacturing	66%
Work hours (shift systems) unsuitable	66%
Women less preferred than men in my field of education	66%
Low number of female managers in the manufacturing sector	66%
My education and skills do not align with the manufacturing sector	57%
Lack of sufficient knowledge about the manufacturing sector	54%
Absence of daycare facilities in industrial areas	50%
Low-income levels in the manufacturing sector	48%

Source: WE Early-Career STEM Talent Survey

When evaluating the candidates' approaches to company selection, the presence of female employees and managers emerged as the most critical factor for women. Interestingly, there was no significant distinction between the male and female participants in the other criteria, including working hours and physical conditions. Among those with prior work experience, women rated the presence of female employees and managers as highly influential, scoring 3.5 out of 4 during their company selection process. All criteria are considered impactful, although physical conditions (Adequacy of facilities like restrooms, changing rooms and social areas) ranked the lowest, with a score of 3. Factors such as working hours, daycare facilities, gender equality and green transition agendas scored in the range of 3.3 to 3.4, showing consistent importance across genders, with the lack of gender-specific differences being particularly noteworthy. Companies that consider the interests and needs of women and that have reached a critical level of female representation, allowing the emergence of visible female role models within the company, are more likely to be preferred by women, and thus have access a broader talent pool.

Table 13: Company selection criteria

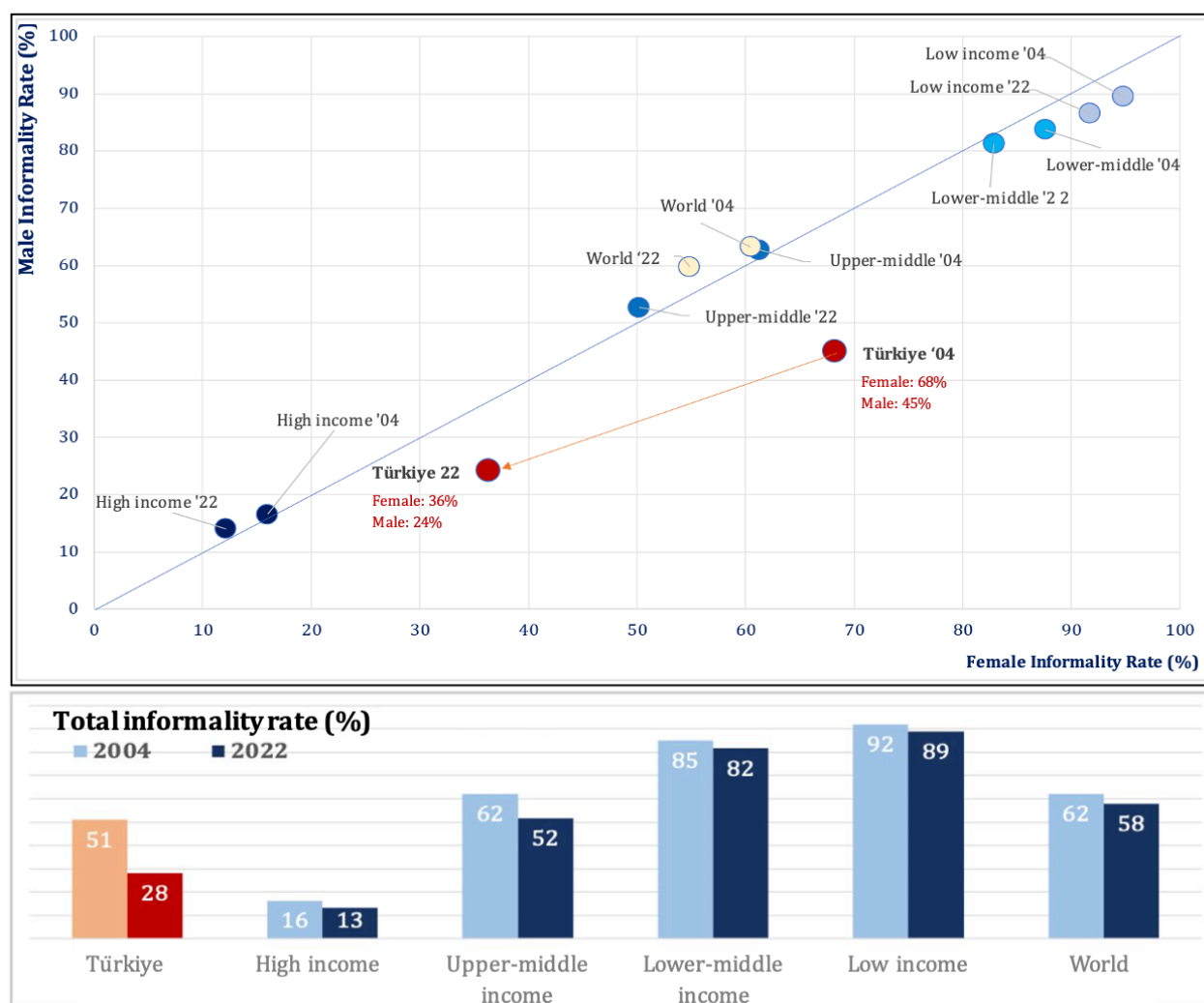
	Female	Male	Overall
Presence of female employees	3.5	-	3.5
Presence of female managers	3.5	-	3.5
Actions or goals of the company to promote gender equality and combat discrimination	3.4	3.5	3.4
Efforts in green transition and climate change	3.4	3.4	3.3
Daycare facilities such as daycare centres, transportation support to daycare, or workplace daycare	3.3	3.5	3.4
Working hours, including full-time, part-time, overtime or shift work	3.3	3.4	3.3
Strict policies against workplace violence and sexual harassment	3.3	3.4	3.3
Availability of mentorship and leadership programmes	3.2	3.1	3.3
Adequacy of facilities like restrooms, changing rooms and social spaces	3.0	3.2	3.3

Source: WE Early-Career STEM Talent Survey

3.1.6. Women in Informal Employment

In recent years, Türkiye has distinguished itself from the global average with a notable decrease in unregistered employment, decreasing the gap between itself and high-income countries. When it comes to the disparity in unregistered employment between men and women, however, Türkiye suffers from a significant gender gap in terms of informal employment. In 2004, the rate of unregistered employment in Türkiye was slightly above the global average of 51 percent, and above the average of the middle-high income group countries of 62 percent. By 2022, this rate had fallen to 28 percent, reaching a level comparable to the 13 percent average of the high-income group. Despite this progress, the rate of women in unregistered employment remains considerably higher than that of men. While the female unregistered employment rate has decreased from 68 percent in 2004 to 36 percent in 2022, the proportion of women in unregistered employment within the total has increased from 34 percent in 2004 to 42 percent in 2022. Even as the general incidence of unregistered employment has declined, the share of women in unregistered employment has risen. In contrast, the global average, and among the averages for high and middle-high income groups, the unregistered rate for males is above that of females. In middle-low and low-income country groups, although the rate of female unregistered employment is higher than that of males, the difference between sexes is less than that of Türkiye.

Figure 31: Female, Male and Total Informality Rate, Countries by income groups and Türkiye, 2004 versus 2022



Source: ILOStat, PAL Calculations

Despite the notable decline in informal employment rates in Türkiye in recent years, the employment rates of women have been higher than those of men in the manufacturing and services sectors since 2004. In Türkiye, the decline in informal employment is notable, with informal employment among females falling from 68 percent to 28 percent, and among males from 52 percent to 24 percent from 2004 to 2022. That said, in various sectors in Türkiye the informality rates for women remained higher than those of men between 2004 and 2022. In manufacturing in particular, female informality rates have fallen from 46 percent to 19 percent, while those of males have declined from 28 percent to 10 percent. In the services sector, female informality has declined from an initial 31 percent to 21 percent, although this is still above the male rate, which declined from 33 percent to 16 percent. In agriculture, which has a high ratio of informal employment, women generally work as unpaid family labour, and their informality rates are much higher (100–97%) than those of men (85–75%).

Across all sectors, female informality rates have decreased from 68 percent to 36 percent, yet consistently surpass the male rates, which have declined from 45 percent to 24 percent. This persistent gap highlights that, despite improvements, female workers are still more likely to be in informal employment than their male counterparts in all sectors.

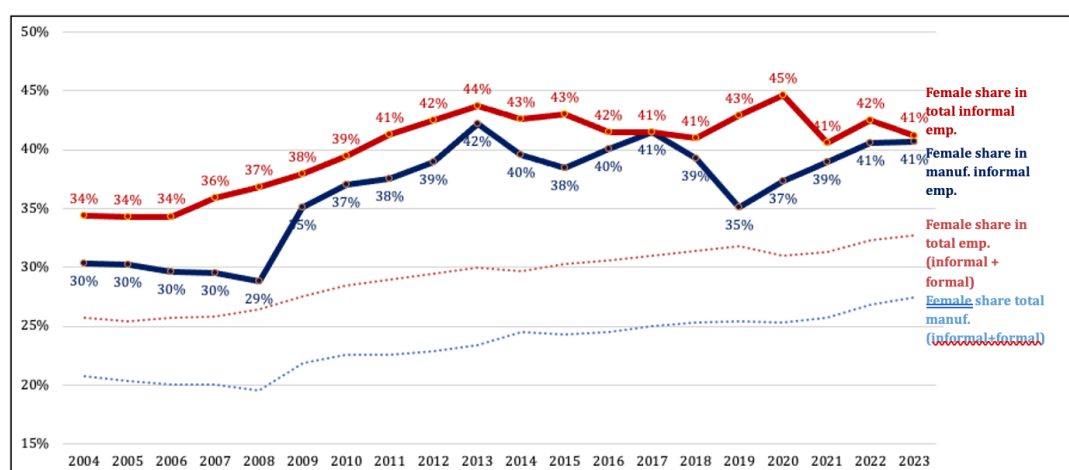
Table 14: Informality rate by sectors, %, Türkiye, 2004–2022

		2004	2008	2012	2016	2020	2022
Manufacturing	Female	46	38	37	33	24	19
	Male	28	23	17	16	14	10
	Total	32	26	22	20	16	13
Agriculture	Female	100	99	99	98	98	97
	Male	85	80	75	75	78	75
	Total	91	89	86	85	86	84
Services	Female	31	27	26	24	21	21
	Male	33	30	22	20	19	16
	Total	33	29	23	21	19	18
Total	Female	68	59	56	46	39	36
	Male	45	39	33	29	28	24
	Total	51	44	40	35	31	28

Source: ILOStat, PAL Calculations

The share of female employees in informal employment remains consistently higher than their share in total employment in the Turkish economy, including within the manufacturing sector. Between 2004 and 2023, the proportion of women in total informal employment rose from 34 percent to 41 percent, with fluctuations peaking at 45 percent in 2020. This figure has persistently exceeded the share of women in overall employment, which increased gradually from 26 percent to 32 percent in the same period. In the manufacturing sector in particular, the share of women in informal employment follows a similar trend – rising from 30 percent in 2004, peaking at 42 percent in 2013, and returning to 41 percent by 2023. Meanwhile, the share of women in total manufacturing employment (formal and informal combined) has remained considerably lower, increasing from approximately 17 percent in 2004 to around 24 percent in 2023. These persistent gaps indicate that, despite the moderate improvement seen in the participation of women in the labour force, informality continues to disproportionately affect female workers, particularly in manufacturing, highlighting the need for targeted strategies to promote formal employment opportunities for women.

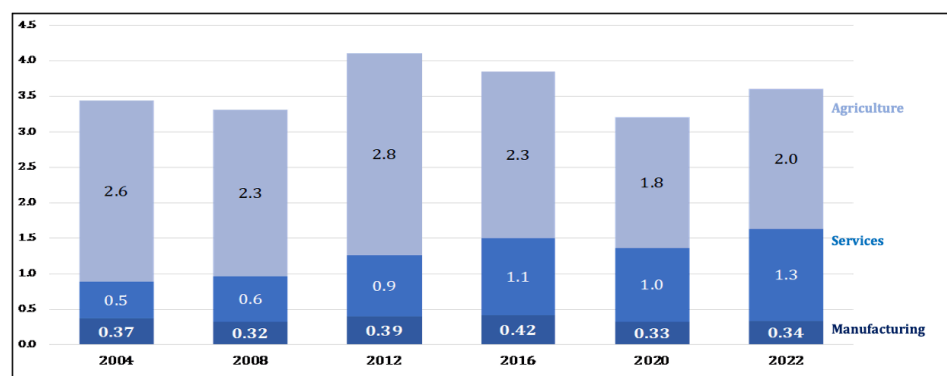
Figure 32: Share of female employees in informal employment by sectors, Türkiye, 2004–2023



Source: ILOStat, PAL Calculations

By 2022, there were approximately 3.6 million women in informal employment in Türkiye, with 340,000 in the manufacturing sector alone. The number of women in informal employment has seen a rise and fall, from 3.4 million in 2004, spiking at 4.1 million in 2012, and returning to 3.6 million in 2022. In manufacturing, the informal employment of women has mirrored this volatility – after dipping from 370,000 in 2004 to 320,000 in 2008, it reached a high of 420,000 in 2016 and then declined slightly to 340,000 by 2022. The services sector has followed a different pattern, climbing steadily from 0.5 million in 2004 to a peak of 1.1 million in 2016, and after a minor decrease in 2020, the figure reached 1.3 million in 2022.

Figure 33: Number of female informal employees by sectors, millions, 2004–2022, Türkiye



Source: ILOStat, PAL Calculations

Informality and vulnerability in employment are closely interconnected for women, as informal jobs often lack such basic protections as social security, job stability and fair wages. Vulnerable employment, defined formally as “the sum of own-account workers and contributing/unpaid family workers, who are less likely to have formal work arrangements, and are therefore more likely to lack elements associated with decent employment such as adequate social security and recourse to effective social dialogue mechanisms”⁴⁷ continues to affect women at far higher rates than men, particularly in the informal manufacturing sector. In Türkiye, the rate of informal employment among women dropped from 68 percent in 2004 to 36 percent in 2022, yet the share of women in informal employment rose from 34 percent to 42 percent, highlighting their continued concentration in unprotected and low-quality jobs, and the shift of more men from informal to formal employment than women.⁴⁸ Underemployment remains as a further major challenge for women, with 16.2 percent of women in Türkiye working only part-time, often due to care responsibilities rather than choice, which reduces both their income and career advancement opportunities.⁴⁹ These patterns are closely linked to the persistent gender wage gap of 24 percent among informal workers, reflecting the intersection of informality, underemployment and wage inequality.⁵⁰ Unionisation could offer a critical pathway toward empowerment and equity, as through collective bargaining and advocacy unions can provide women with access to secure and better wages, social protection and transitions into formal employment, particularly in sectors in which informal and precarious work dominate.

3.1.7. Gender Wage Gap

The gender wage gap, defined as “the gap between the average wage level of all women and all men working in the labour market for a salary, hourly or daily wage,”⁵¹ is a critical indicator of gender-based inequalities in the labour market. It not only highlights discriminatory practices within workplaces, but also underscores disparities stemming from social roles and expectations. According to the ILO report, the gender wage gap is one of the more visible examples of the structural gender discrimination stemming from the horizontal and vertical segmentation of labour forces.⁵² This gap can be attributed to several factors, including disparities in leadership roles, occupational hierarchies, informality, career interruptions, insufficient care-related services and facilities, gaps in legislation and differences in unionisation.⁵³ In Türkiye, the measurement and combatting of the gender pay gap is covered in “Strategy Document and Action Plan on Women’s Empowerment 2023–2028” prepared under the coordination of Ministry of Family and Social Services, General Directorate on the Status of Women..

The hourly gender wage gap is a pervasive issue that impacts all economies around the world, and continues to be a widespread and chronic challenge that transcends the development status of a country. The map below outlines the gender wage gap in 81 countries, indicating the percentage difference between the hourly earnings of women and men. Notably, women earn more than men in 20 countries, with Afghanistan, Eswatini and Iraq leading with gaps favouring women of -125 percent, -81 percent and -66 percent, respectively. One possible reason for this is the low female labour force participation in these countries, where only a small percentage of women work, while men are more widely distributed across various industries, including lower-paid or informal jobs. In contrast, countries like Ghana, Venezuela and South Korea exhibit substantial wage disparities between women and men, with women earning 38 percent, 73 percent and 29 percent less than men, respectively. This is indicative of a wider trend where women’s earnings generally trail those of men in many parts of the world. Türkiye has a wage gap of 4 percent, which is notably less than some of its European counterparts, such as Iceland (12%), France (12%) and Sweden (10%). Among the EU countries, Spain (6%) and Greece (4%) have the closest gender wage gaps to Türkiye.

⁴⁷International Labour Office, 2010

⁴⁸ILOStat

⁴⁹Dedeoğlu, S. et al, 2021

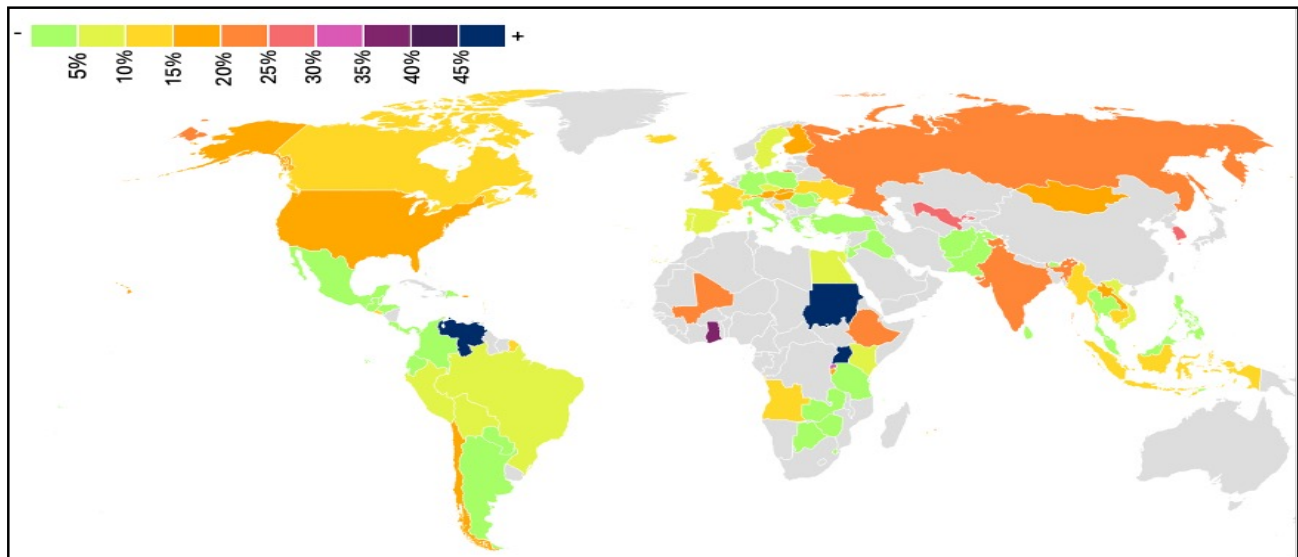
⁵⁰International Labour Organization (ILO) & Turkish Statistical Institute (TÜİK), 2023

⁵¹Memiş, E., & Kale, H. T, 2020

⁵²International Labour Organization (ILO), 2019

⁵³Dedeoğlu, S., & Ekiz Gökmen, Ç, 2021

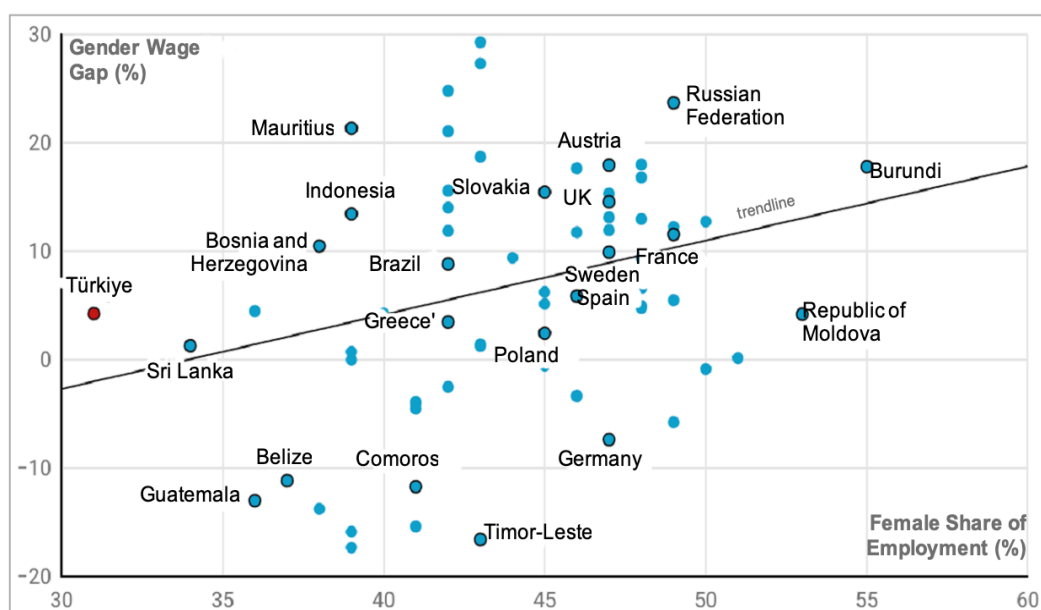
Figure 34: Gender wage gap (hourly), %, 2024 (most available year since 2020)



Source: ILOStat, Datawrapper, PAL calculations

As the share of women in employment decreases, the average wage gap in countries tends to shift in favour of women, suggesting an inverse relationship between the participation of women in employment and wage equality. While Türkiye's gender wage gap of 4 percent may initially appear to be a positive indicator when compared to many developed nations, it requires further scrutiny within this context. Figure 35 clearly illustrates that countries with smaller gender wage gaps, like Türkiye, often have lower female employment rates. Conversely, countries such as Brazil and France, despite exhibiting higher gender wage gaps (9% and around 12%, respectively), maintain considerably higher female employment shares of 42 percent and over 50 percent. Thus, Türkiye's comparatively narrow wage gap may actually reflect the limited participation of women in the labour market rather than genuine economic parity, highlighting the need to interpret wage gaps in conjunction with employment share to understand the true status of gender equality in the workforce.

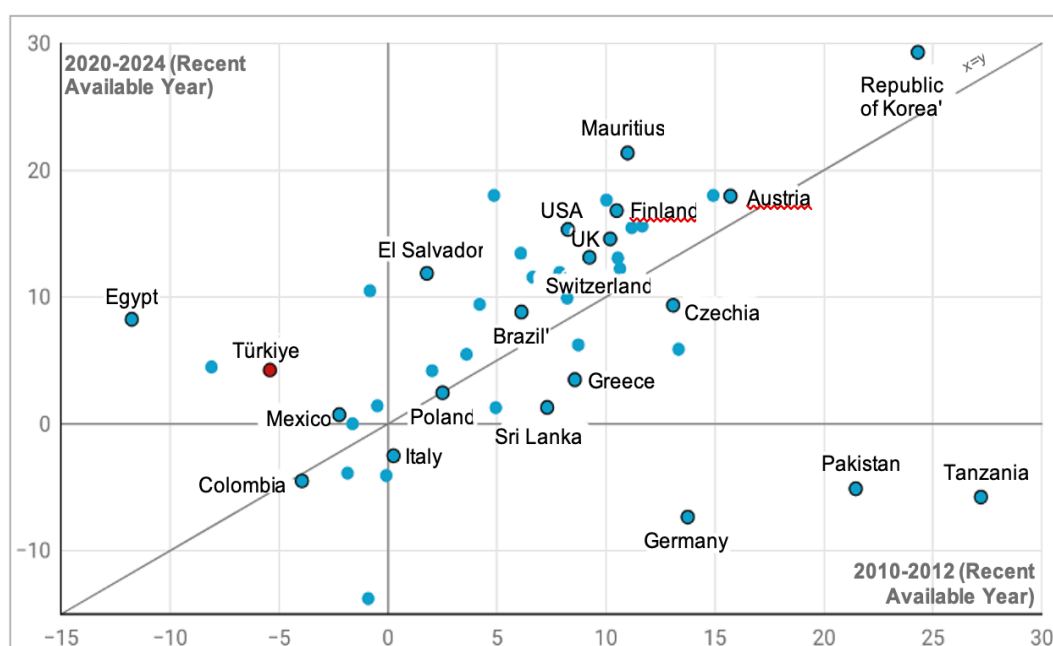
Figure 35: Gender wage gap (%) and Female share of employment (%) 2024 (most recent available year since 2020)



Source: ILOStat, Datawrapper, PAL calculations

Between 2010 and 2024, the gender wage gap trend has varied around the globe, with some countries seeing a reduction while others, including Türkiye, experiencing an increase. From 2010 to 2024, the gender wage gap increased in most developed countries, while only a few saw a reduction. Spain in particular made notable progress, reducing its gap from 13 percent to 6 percent, indicating a significant move towards income equality. Similarly, Greece, with its evolving economic landscape, decreased its gender wage gap from 9 percent to 3 percent. Germany, despite having one of the higher gaps in 2012 at 14 percent, saw a reversal by 2021, with women now earning more than men at a level of -7 percent. The most significant reduction in the gender wage gap has been observed in Tanzania, where the gap has reduced from 27 percent to -6 percent. In contrast, the gender wage gap has widened in several countries, including Türkiye, where it rose from -6 percent to 4 percent (from 2012 to 2023). This upward trend can be seen also in the United Kingdom, which saw an increase from 10 percent to 14.58 percent; in Hungary, from 10 percent to 18 percent; and in Portugal, from 4 percent to 5 percent, highlighting the persistent or growing disparity in gender-based income. Meanwhile, South and Central American countries like Honduras, Colombia, Paraguay and Panama are exceptional cases, with gender wage gaps that actually favour women. This mixed global picture underscores the complexity of efforts to achieve equality, with progress being uneven across different regions.

Figure 36: Change in hourly gender wage gaps by countries 2010–2024

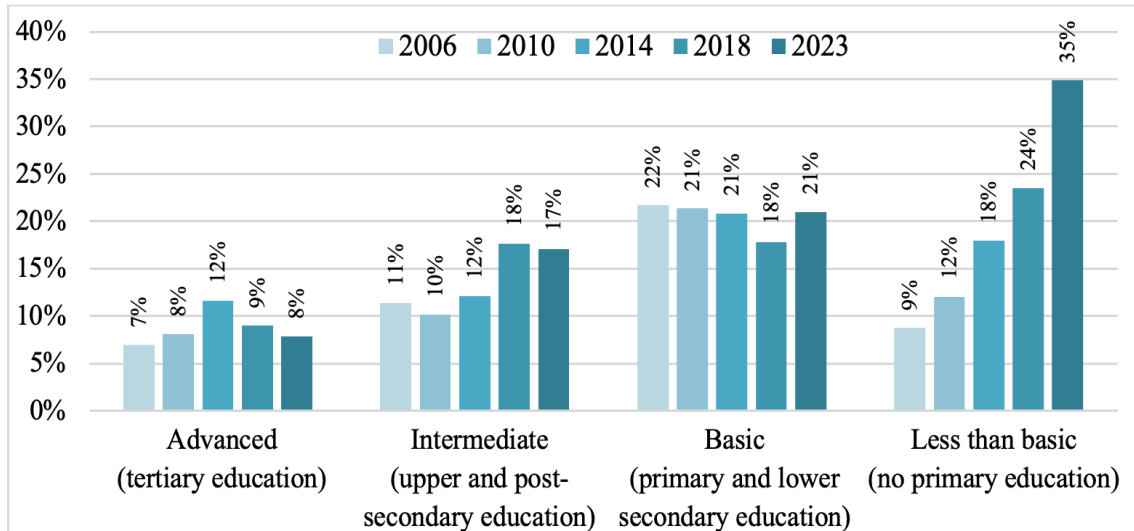


Source: ILOStat, Datawrapper, PAL calculations

Note: For 2012 values, the data covers 2010–2012 period (most available year) and for 2024 values, the data covers 2020–2024 (most available year). Türkiye's data represent 2012 versus 2023.

The gender wage gap is equal across all education levels in Türkiye, although the disparities are significantly greater for those with lower education levels. While the wage gap favours men at all education levels, it is most pronounced among those with less than basic education, where the gap has increased from 9 percent in 2006 to 35 percent in 2023. Similarly, people with only a basic education (primary and lower secondary) consistently face wage disparities exceeding 20 percent, reaching 21 percent in 2023. For those with an intermediate education (upper and post-secondary) level, the wage gap has fluctuated between 10 percent and 22 percent, indicating a persistent but slightly more stable trend. Meanwhile, among those with advanced (tertiary) education the gap is more moderate, ranging from 7 percent to 12 percent over the years. Despite the variations, the data highlights a persistent disparity in earnings between men and women at all educational levels, suggesting that a higher level of education alone does not eliminate gender-based wage disparities.

Figure 37: Gender wage gap by education levels in Türkiye, %, 2006–2023



Source: ILOStat, PAL calculations

In Türkiye, the gender wage gap has varied in different occupations over the years, but has consistently favoured men, though with differing degrees of disparity. Some of the largest gaps between men and women are seen among service and sales workers, varying between 26 percent and 29 percent between 2006 and 2023, while women account for only 29 percent of this workforce. Similarly, plant and machine operators, among whom women account for only 11 percent, have maintained persistent wage disparities, ranging from 19 percent to 24 percent. Technicians and associate professionals, despite being a highly skilled category, saw their gap widen from -3 percent in 2006 to 15 percent in 2014, before stabilising at 11–12 percent in recent years, with women making up 29 percent of this group. Meanwhile, elementary occupations, in which women have a relatively higher presence (39%), have recorded a more stable but ongoing gap of between 8 and 14 percent. Professional roles, which have the highest share of females (44%), saw their wage gap grow from 3 percent in 2006 to 12 percent in 2018, holding at 11 percent in 2023. The most striking shift has been seen in managerial positions – once favouring women with a -22 percent to -23 percent wage gap in 2006 and 2010, but reversing from 2014 onward to reach 4 percent in favour of men by 2023. Despite the fluctuations, the persistence of the wage gap in most occupations reflects the ongoing structural inequalities in Türkiye’s labour market.

Table 15: Gender wage gap by occupation, %, 2006–2023

	Gender Wage Gap					Female share (2006–2023 average)
	2006	2010	2014	2018	2023	
Managers	-22%	-23%	-5%	-1%	4%	14%
Professionals	3%	7%	11%	12%	11%	44%
Technicians and associate professionals	-3%	3%	15%	11%	12%	29%
Service and sales workers	21%	22%	26%	26%	29%	29%
Plant and machine operators, and assemblers	24%	24%	24%	19%	21%	11%
Elementary occupations	14%	13%	13%	8%	8%	39%
Total	-7%	-10%	-1%	1%	4%	39%

Source: ILOStat, PAL calculations

The gender wage gap in Türkiye saw considerable fluctuations in different economic sectors between 2006 and 2023, with the varying levels of female representation influencing the wage disparities. The manufacturing sector, in which women account for 29 percent of the workforce, experienced some of the most notable changes. In 2006, women in the manufacturing sector were earning slightly more than men (-3% gap), but by 2023 this gap had reversed to 12 percent in favour of men, revealing growing disparity despite the relatively stable female participation rate. A similar trend was noted in construction, where the wage gap widened from 3 percent to 12 percent, despite the representation of women remaining significant at 44 percent. Meanwhile, agriculture recorded a dramatic shift – historically one of the few sectors in which women out-earned men (-22% in 2006) – flipping to 4 percent in favour of men by 2023. In the mining and quarrying sector – a field that is traditionally dominated by men, with only 29 percent female participation – the wage gap maintained its high levels, rising from 21% to 26% in favour of men. In public administration and the social services sector, despite the lower share of women in the workforce (11%), the existing substantial gap has been maintained, experiencing only a slight decline from 24 percent to 21 percent. These trends suggest that wage disparities are not influenced solely by the level of female representation, being shaped also by the broader structural and economic factors within each sector.

Table 16: Gender wage gap by economic activity, %, 2006–2023

	Gender Wage Gap					Female share (2006–2023 average)
	2006	2010	2014	2018	2023	
Agriculture	-22%	-23%	-5%	-1%	4%	14%
Construction	3%	7%	11%	12%	11%	44%
Mining and quarrying; Electricity, gas and water supply	21%	22%	26%	26%	29%	29%
Public Administration, Community, Social and other Services and Activities	24%	24%	24%	19%	21%	11%
Trade, Transportation, Accommodation and Food, and Business and Administrative Services	14%	13%	13%	8%	8%	39%
Manufacturing	-3%	3%	15%	11%	12%	29%
Total	-7%	-10%	-1%	1%	4%	39%

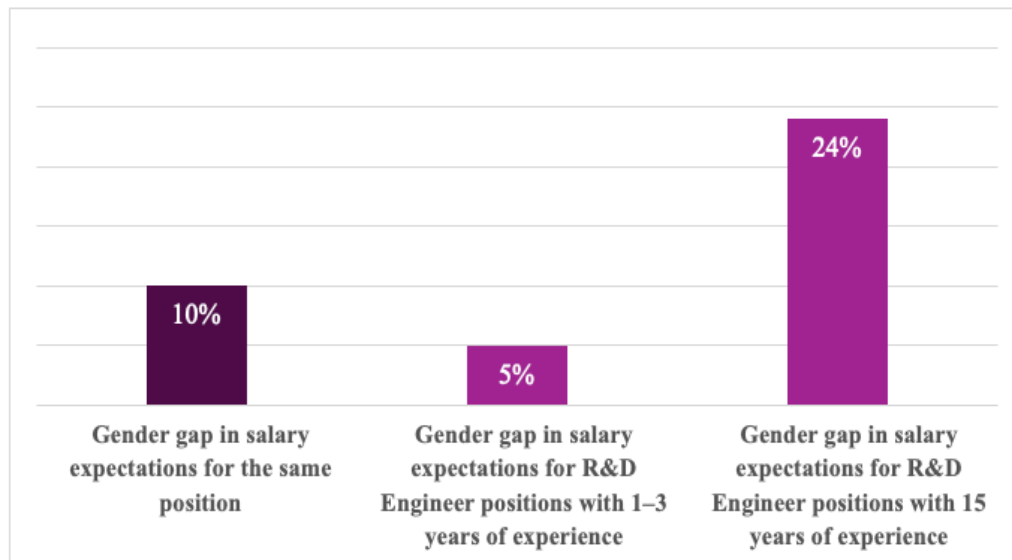
Source: TurkStat, PAL calculations

Moving away from the gender wage gap, the average wage disparity between women with and without children is particularly striking in highlighting the barriers to the empowerment of mothers in the workforce. In short, a wage gap exists not only between men and women, but also between mothers and women with no children. The motherhood wage gap refers to the average difference in wages between mothers and non-mothers, showing that women with children tend to earn lower wages than their counterparts. Another approach to the measurement of the motherhood wage gap compares the wages of working mothers and fathers, although a reverse trend is observed in the case of fatherhood.

Unlike mothers, fathers are more likely to earn higher wages than men without children, suggesting that in employment and career progression, having children may be advantageous for men.⁵⁴ In Türkiye, the wage gap between working mothers and working women without children has been calculated at 11 percent, while the wage gap between paid working fathers and mothers stands at 19%.⁵⁵ The highest motherhood wage gaps are observed in the Russia Federation (14.7%), Madagascar (14.6%), Peru (12.9%) and the Republic of Korea (12.6%), while the lowest motherhood wage gaps are observed in South Africa (1.1%), Canada (2.3%), Chile (2.4%) and Ukraine (-2.8%).⁵⁶

Women tend to have lower salary expectations than men, starting early in their careers and continuing as they gain experience, reflecting both the market dynamics and the structural gender biases. Gender differences in salary expectations play a significant role in the gender wage gap. On average, women expect 10 percent less than men for identical roles, and this discrepancy becomes more pronounced over time. For instance, female R&D engineers with 1–3 years of experience expect to earn 5 percent less than their male counterparts, and this gap increases to 24 percent for those with more than 15 years of experience. These differences are not solely the result of individual choices or lack of confidence, but also a strategic response to the gendered labour market dynamics. In male-dominated professions in particular, where the presence of women may be considered atypical, lower salary expectations can serve as a means by which women can increase their competitiveness. The lower wages demanded by women are attractive to employers, leading to women “bargaining with patriarchy” to gain access to roles from which they might otherwise be excluded.⁵⁷ This strategy challenges the notion that lower expectations are a sign of submission or learned helplessness. The contrast in perceptions between sexes is also telling: while 58 percent of women believe they are paid less than men, 80 percent of men remain unaware of such disparity, underlining how the disconnect in wage inequality is experienced and understood by the sexes.⁵⁸

Figure 38: Gender gap in salary expectations in Türkiye, 2023



Source: Kariyer.net, PAL analysis

⁵⁴Dedeoğlu & Ekiz Gökmen, 2021; Memiş & Kale, 2020

⁵⁵Memiş & Kale, 2020

⁵⁶Dedeoğlu & Ekiz Gökmen, 2021

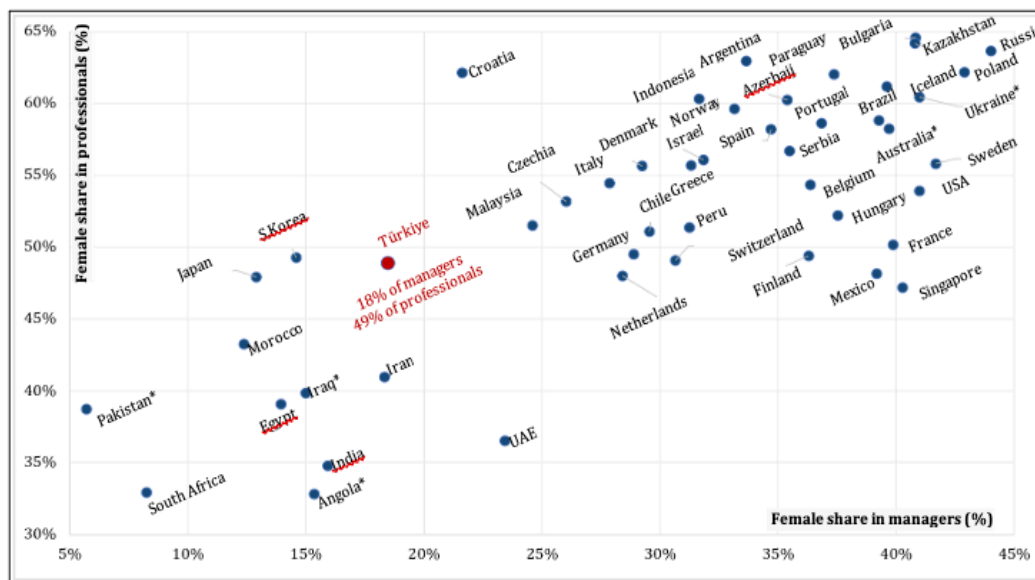
⁵⁷The term “bargaining with patriarchy” was first used by Kandiyoti, D. (1988), who claims “these patriarchal bargains exert a powerful influence on the shaping of women’s gender ideology in different contexts”. She conceptualizes the process of bargaining as a reason for the differences in the patriarchal structures from one geographical and cultural region to another. Here, the term “bargaining with patriarchy” is used to refer to the strategy adopted by professional women to enter gender-exclusive labour markets.

⁵⁸Kariyer.net, İş Hayatında eşitsizliğin İstatistikleri

3.1.8. Gender Segregation in High-Skilled (professional) Occupations and Leadership

As in many other countries, the representation of women in professional occupations is not mirrored in managerial positions in Türkiye. Women hold nearly half of the professional positions in Türkiye, while their representation in managerial positions is significantly lower at only 18 percent. A similar pattern can be observed in Japan and South Korea, where the representation of women in management positions is just 13 percent and 15 percent, respectively, despite their 48 percent and 49 percent share in professional occupations. Conversely, countries like Russia (44% in management, 64% in professional occupations), Sweden (42%, 56%) and the United States (41%, 54%) boast a stronger female presence in both managerial and professional positions, suggesting more progress towards gender parity in leadership roles within the private sector. The countries with the lowest representation of women in professional and managerial positions include South Africa (8% in managerial, 33% in professional), Egypt (14%, 39%) and Pakistan (6%, 39%), indicating more entrenched social and institutional barriers. Meanwhile, in Germany (29% in managerial, 49% in professional occupations), Italy (28%, 54%) and Malaysia (25%, 52%), the high level of participation in professional occupations by women has yet to be fully mirrored in managerial roles. Overall, these figures illustrate the varying degrees of gender equality in the professional world, and it can be understood that Türkiye has considerable room for improvement, especially in the elevation of women to managerial positions.

Figure 39: Share of women in highly skilled occupations (managers and professionals), Türkiye and other countries, 2022



Source: ILOStat, PAL Calculations

Note: Data of countries marked (*) is from 2021

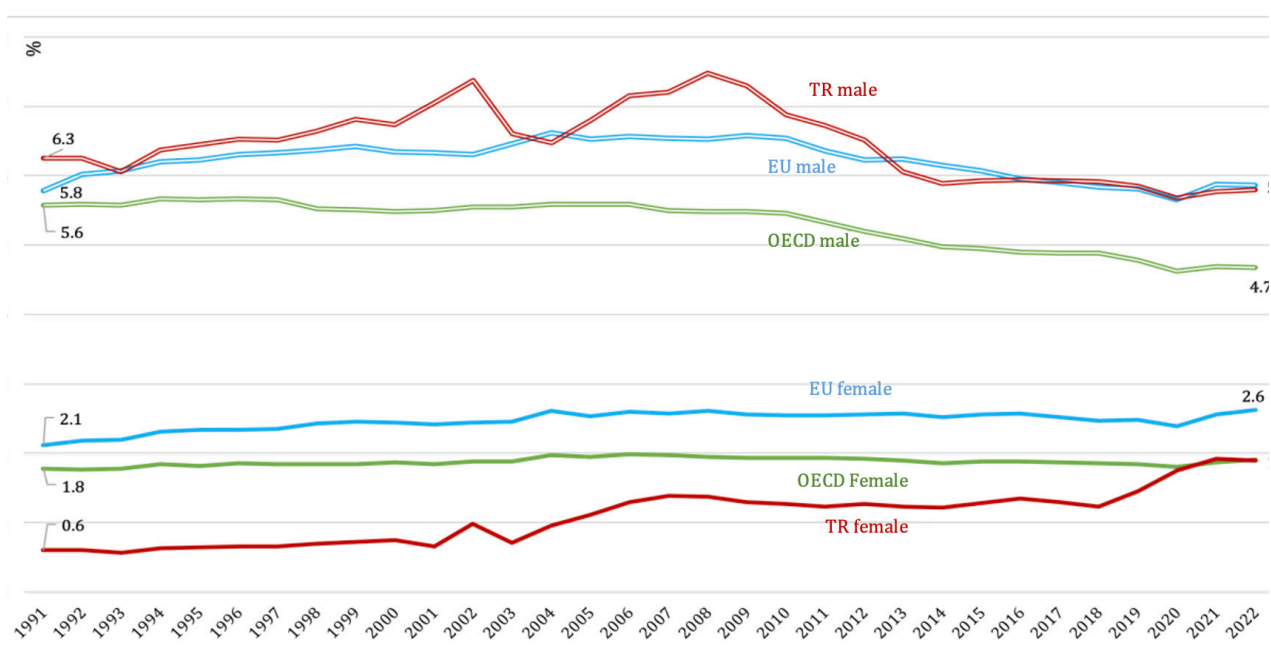
Professionals: Professionals increase the existing stock of knowledge; apply scientific or artistic concepts and theories; teach about the foregoing in a systematic manner; or engage in any combination of these activities. (Sub-major groups: Science and Engineering Professionals, Health Professionals, Teaching Professionals, Business and Administration Professionals, Information and Communications Technology Professionals, Legal, Social and Cultural Professionals)

Managers: Managers plan, direct, coordinate and evaluate the overall activities of enterprises, governments and other organisations, or the organisational units within them, and formulate and review their policies, laws, rules, and regulations.

For more info: <https://ilostat.ilo.org/methods/concepts-and-definitions/classification-occupation/>

In Türkiye, the female employer rate has been significantly lower than that of male employers since the 1990s, and the gap is greater than in developed countries. From 1991 to 2022, the proportion of employers within the employed population in Türkiye has consistently been above the OECD average for males, remaining close to that of the EU (Figure 40). The male employer rate of 6.3 percent recorded in Türkiye in 1991 saw a general upward trend to peak at 7.4 percent in 2002, after which it entered a period of gradual decline to reach 5.8 percent in 2022. The rate for females in Türkiye was 0.6 percent in 1991, significantly lower than both the EU and OECD averages, but saw a substantial increase over time to reach 1.9 percent by 2022. Despite this increase, the ratio of female employers in Türkiye's employment remains below the OECD and EU averages, indicating a deeper gender gap in Türkiye than the OECD and the EU averages.

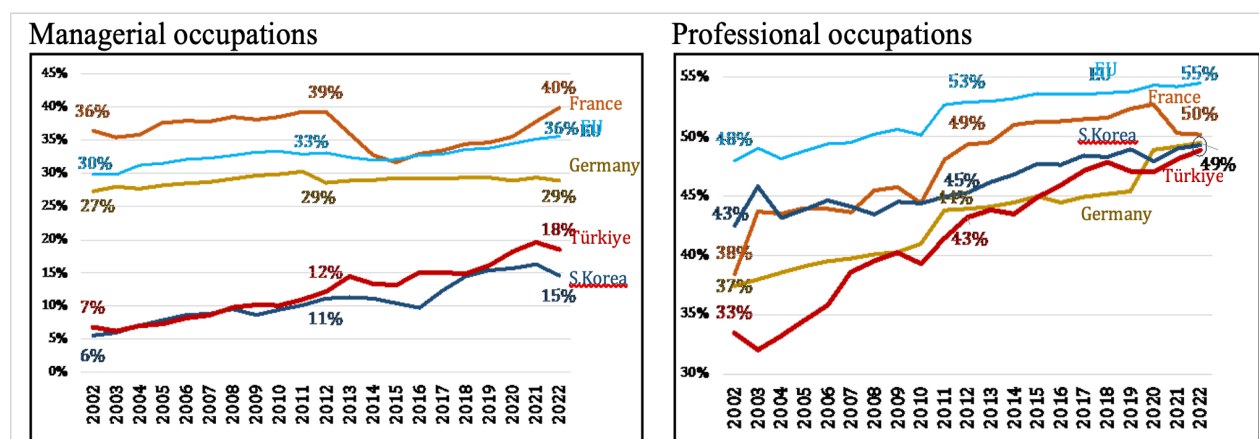
Figure 40: Share of employers in employment, male and female, Türkiye, OECD, World, %, 1991-2022



Source: The World Bank, PAL Calculations

Türkiye's substantial growth in the number of people in professional positions suggests increases in educational attainment and the entry of women into the workforce, however, the shares of men and women in management roles are still far from the parity threshold. From 2002 to 2022, the representation of females in professional and managerial roles has witnessed significant change in many countries. In Türkiye, there has been a notable increase in the number of women in professional roles, from 33 percent to 49 percent, almost reaching parity. The progress in managerial roles, however, has been more modest, with an increase from 7 percent to 18 percent. The presence of women in professional roles in Germany has remained at around the 49 percent level, indicating sustained inclusion over the last 2 decades, coupled by a marginal increase in the number of women in managerial roles from 27 percent to 29 percent. The situation in South Korea is particularly noteworthy, with the participation of women in professional roles increasing from 43 percent to 49 percent, while their presence in managerial roles has more than doubled from 6 percent to 15 percent, suggesting a dynamic shift towards greater gender diversity in leadership positions. France lags slightly behind Türkiye in this respect, with female professionals maintaining a level of around 50 percent, however, the proportion of women in managerial positions has increased from 36 percent to 40 percent, indicating a gradual improvement in leadership inclusivity. These trends reflect a global movement towards more gender-inclusive work environments with varying degrees of progress seen in different countries and sectors.

Figure 41: Change of the share of women in managerial and professional positions, Türkiye, Germany, South Korea, France, 2002–2022

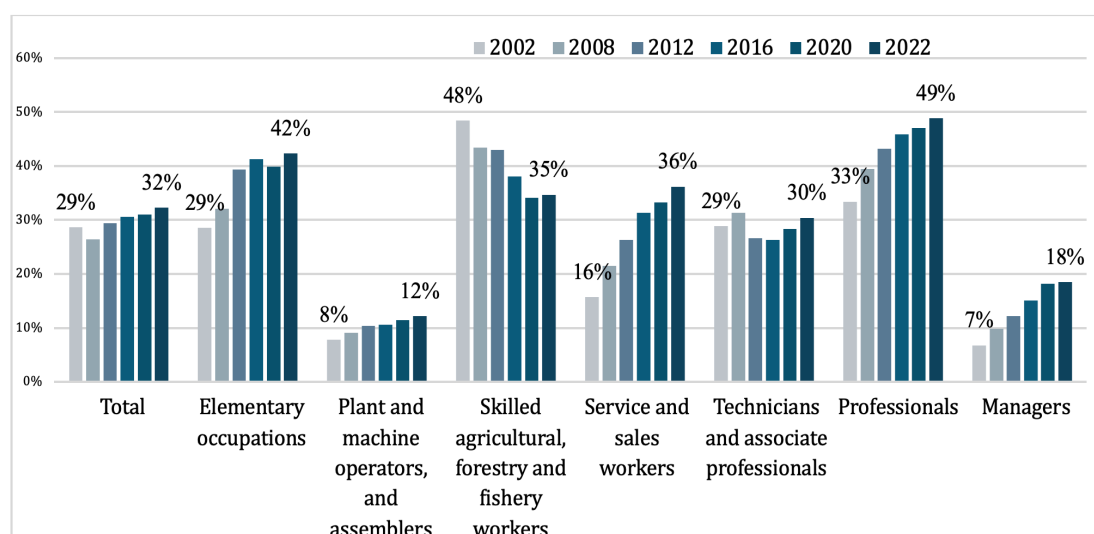


Source: ILOStat, PAL Calculations

Over the past 2 decades in Türkiye, a slow but discernible increase has been noted in the representation of women in various occupational categories. In Türkiye, the proportion of women in different occupations has varied from 2002 to 2022. Overall, the participation of women in the workforce has increased slightly, from 29 percent to 32 percent, while more nuanced changes are revealed by a closer look at specific occupations. Elementary occupations saw a steady rise in the share of women, from 29 percent to 42 percent, indicating a growing presence in entry-level roles. Meanwhile, a modest increase from 8 percent to 12 percent has been noted in plant and machine operator and assembly roles, suggesting a gradual change in gender dynamics in what are traditionally male-dominated fields. The share of women among skilled agricultural, forestry and fishery workers has decreased from 48 percent to 35 percent, which may be attributed to changes in the structure of the sector and employment opportunities.

As previously discussed, internal migration has led to shifts in employment for women who were previously employed as unpaid family labourers in agriculture, forestry and fishery businesses, who have either become unemployed or have entered the urban labour market. Service and sales occupations, which have traditionally been more inclusive, have seen an increase in female representation from 16 percent to 36 percent, reflecting the global trend in the services sector. Women who have migrated from rural to urban areas and whose agricultural skills are not directly applicable to industrial production often find opportunities in the service sector, where their domestic skills are more transferable. The employment of women as technicians or associate professionals has increased from 29 percent to 30 percent, while the professional category has seen a significant rise from 33 percent to 49 percent, indicating that more women are entering and remaining in highly skilled professions.

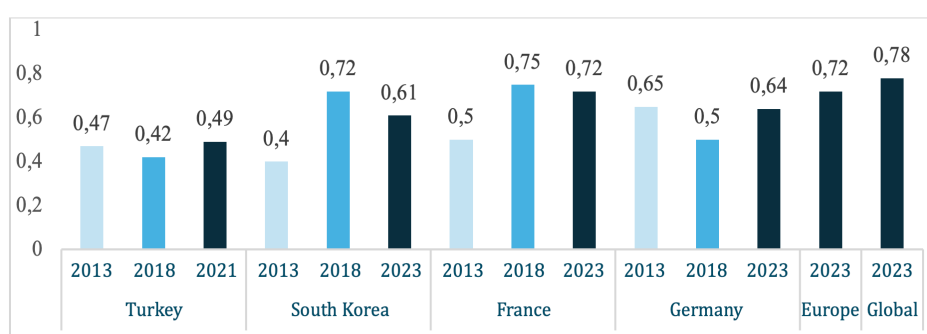
Figure 42: Share of females in selected occupations, Türkiye, 2002–2022



Source: ILOstat, PAL calculations

The Female/Male ratio of 0.49 in Total Early-Stage Entrepreneurial Activity (TEA) in Türkiye indicates that approximately 33 percent of TEA participants are women. Although this ratio is far from balanced, an even smaller proportion is reflected in company ownership and employer statistics. The female/male ratio in early stage entrepreneurial activity (TEA) in Türkiye has fluctuated over the years, declining from 0.47 in 2013 to 0.42 in 2018, before recovering slightly to 0.49 in 2021 (value at 1.00 indicates full equality between females and males). In comparison, the global average of 0.78 (with women representing 44 percent of TEAs), while the European average is 0.72 (with women making up 42% of TEAs). While Türkiye's 2021 ratio of 0.49 is not necessarily a poor figure – matching Germany's 2018 and France's 2013 levels – it does not fully reflect the total number of female employers, own-account workers and entrepreneurs. While 33 percent of TEA entrepreneurs in Türkiye are women, in 2021, their progression to more advanced stages of entrepreneurship remained significantly lower, with only 12 percent of employers and 19 percent of own-account workers being women, while female entrepreneurs accounted for just 17 percent of the total. Hence, the actual number of women in entrepreneurial roles remains low, reflecting the broader structural barriers in Türkiye that hinder their participation.

Figure 43: Female/Male Total Early-Stage Entrepreneurial Activity (TEA) Ratio, 2013–2023

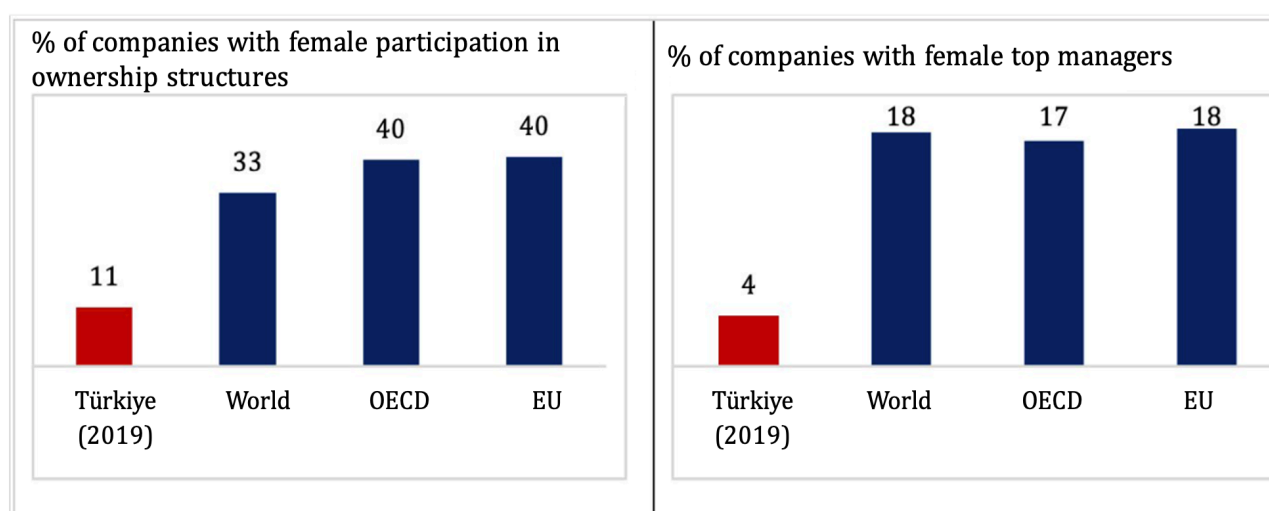


Source: Global Entrepreneurship Monitor (GEM)

Note: The Female/Male Total Early-Stage Entrepreneurial Activity (TEA) Ratio measures the proportion of women engaged in early-stage entrepreneurial activity relative to men. It is calculated based on the percentage of the adult population (typically aged 18–64 years) who are either actively involved in setting up a business or who have recently started one, providing insights into gender disparities in entrepreneurship. A Female/Male TEA Ratio of 1 indicates gender parity in early-stage entrepreneurial activities, meaning that the number of women engaged in early-stage entrepreneurship is equal that of men, as well as a balanced entrepreneurial ecosystem in terms of gender representation. A Female/Male TEA ratio of 0.5 indicates that there are twice as many men as women engaged in entrepreneurial activities, while a TEA ratio of 2 indicates that there are twice as many women as men.

In 2019, female leadership and ownership in Türkiye's private sector lagged significantly behind the global averages, suggesting that Türkiye has a long way to go in this regard. As of 2019, in only 11 percent of Turkish companies are women represented in their ownership structures, which is significantly lower than the global average of 33 percent (Figure 44). This disparity becomes even more pronounced when Türkiye is compared with the OECD and EU Member States, in which the rates are around 40 percent. This suggests that while other regions are moving towards more inclusive business practices, Türkiye still faces challenges in promoting female entrepreneurship and ownership. The presence of women in senior management positions is another critical indicator of gender diversity in corporate leadership. In 2019, only 4 percent of private sector companies had women among their senior managers, which is significantly lower than the global, OECD and EU averages of 18 percent, 17 percent and 18 percent, respectively. This indicates that Türkiye is slower in taking action to integrate women into the highest levels of business leadership when compared to these regions.

Figure 44: Share of companies with female participation in ownership and senior management positions, 2022



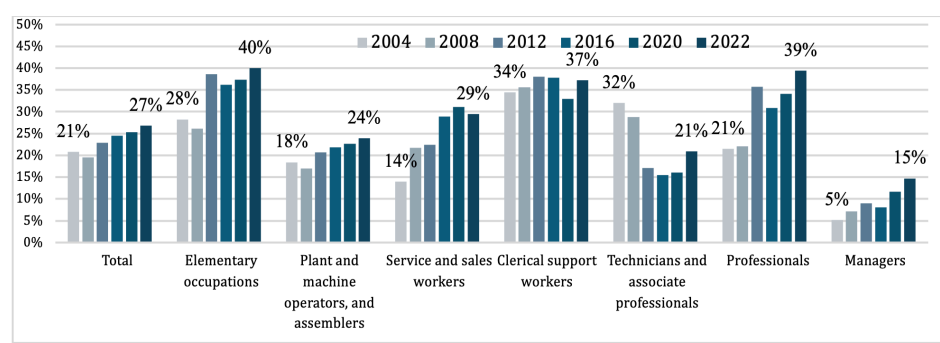
Source: World Bank Enterprise Surveys

Note: Companies with female participation in the ownership structures are those with a woman among the principal owners. Companies with female top managers are those in the private sector who employ females as the most senior managers, being the highest-ranking manager or CEO of the establishment. This person may also be the owner if s/he works as the manager of the company. The results are based on surveys of more than 100,000 private companies.

3.1.9. Summary: Understanding the Inverted Pyramid of Women in the Manufacturing Sector

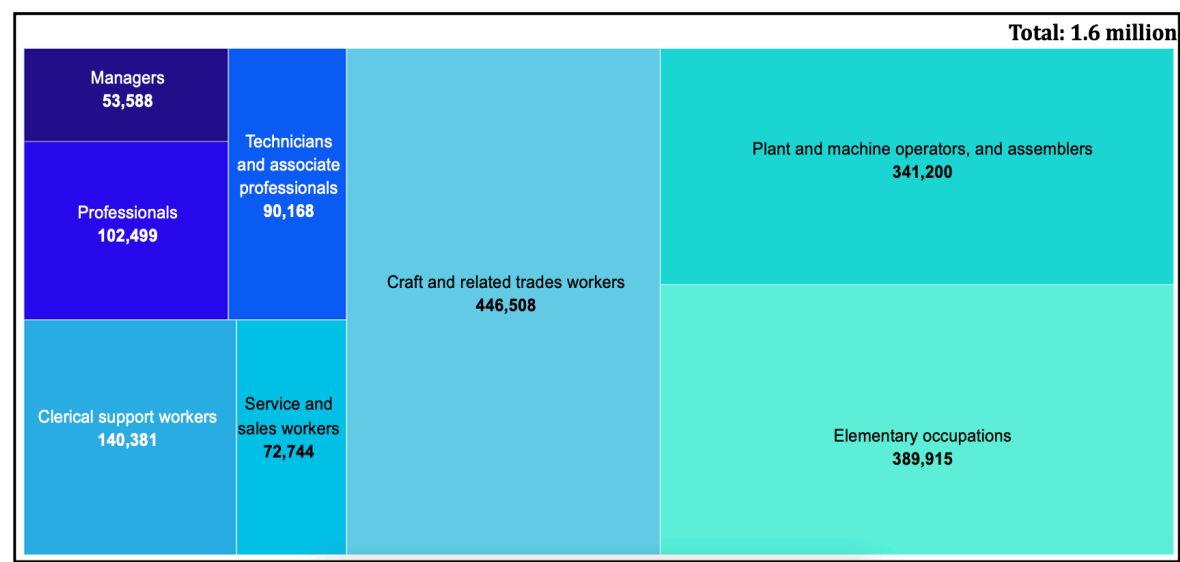
While female employment in Türkiye’s manufacturing sector has risen over time and the number of women in various positions has increased, the proportion of women in managerial roles has reached just 15 percent, while women now constitute 27 percent of the total industrial workforce. The representation of women in the manufacturing sector in various occupations in Türkiye witnessed a notable shift between 2004 and 2022. In 2004, women made up 21 percent of the total manufacturing workforce, with the highest representation in clerical support roles at 34 percent and the lowest in managerial positions at a mere 5 percent. Over the years, the overall female share in the manufacturing workforce has grown gradually, and reached 27 percent in 2022. Women in elementary occupations have seen a significant increase in representation from 28 percent in 2004 to 40 percent in 2022. Similarly, the share of women in professional roles has increased from 21 percent to 39 percent (102,000), and in managerial roles from 5 percent to 15 percent (54,000), indicating progress in the participation of women in higher-skilled and leadership positions. That said, fluctuations have been seen in the representation of women in some roles, such as in technicians and associate professionals, where the share of women peaked at 38 percent in 2012 before falling to 21 percent in 2022. The upward trend in managerial roles is encouraging, showcasing a gradual but positive change towards greater gender diversity in leadership within the sector.

Figure 45: Female share in manufacturing occupations, Türkiye, 2004-2022



Source: ILOstat, PAL calculations

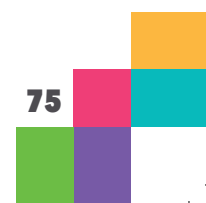
Figure 46: Number of female employees in manufacturing, Türkiye, 2022



Source: ILOstat, PAL calculations

The factors hindering WE in social and economic life also pose significant challenges to their advancement in the manufacturing sector. Gender stereotypes in the labour market, educational attainment, informality, lack of care facilities and the unequal distribution of care work, occupational segregation and barriers to managerial positions, skill mismatches and the wage gap are all significant hurdles faced by women in the manufacturing sector:

- » Although the participation of women and men in education are similar, the selected fields of education significantly divert women away from industrial occupations. While 47 percent of those in tertiary education are women, only 33 percent of those graduating from engineering and IT departments are women. In this regard, while participation in education is a generally low-level barrier, it is highly impactful on WE in the manufacturing sector (See Section 3.1.3. for details).
- » Family structures and caregiving responsibilities are factors that complicate the overall empowerment of women and their participation in economic life, and the limited availability and low affordability of care services exacerbate this challenge. The hierarchy in the division of labour in the family and the unequal share of care work undertaken by women and men determines the use of labour power. The labour force participation rate of women living alone and without children is 75 percent, however, this rate falls to 54 percent for married women without children, and further to 36 percent for those who are married with children (See 3.1.1. for details). The inadequacy of care services force women out of the labour market while also deepening the gender wage gap – women with children earn, on average, 15 percent less than those without children (See 3.1.7. for details).
- » Within the social system, gender stereotypes and discriminatory approaches assume that the labour power of women should primarily be directed to reproduction in the family (i.e. that care and production of new generations), and if and when they take part in the labour market, they should fulfil both the household and market related responsibilities. Both the bodies and labour power of women are under the control of society through the authority of the head of the family, traditionally assumed to be a man. In other words, women are not free to decide where and how to use their labor. This discriminatory structuring in the social system ensures women's labour remains vulnerable to various disadvantages and ensures the perpetuation views against the participation of women in the workforce, and these views tend to be more pronounced when discussing industrial jobs. According to TurkStat data, 44 percent of women and 56 percent of men believe women should not work if it is not essential for the family's livelihood (See 3.1.2. for details).
- » The unemployment rate of women in Türkiye stands at 13 percent, compared to 9 percent for men, in part attributable to the mismatch of skills with the market. The participation of the women in the labour market is high in fields with high rates of skill mismatch, such as banking, health management and business management. In contrast, in the engineering fields where the mismatch is low, the participation of women is significantly lower (See 3.1.4 for details).



- » While informality in employment in Türkiye is lower than in other countries, the greater tendency for women to be employed informally than men is a significant issue. The rate of informal work among men is 24 percent, compared to 36 percent for women, and while this gap narrows slightly in the manufacturing sector, it still persists. This situation is also particularly prominent among women providing care services. More than 4 percent of all employed women in Türkiye work in the care sector without being registered with the Social Security Institution. Informal employment is vulnerable employment, and facilitates workforce detachment (See Section 3.1.6. for details).
- » In Türkiye, the average hourly gender-based wage disparity persists across all professional groups. The income gap is 4 percent for managers and 21 percent for professional occupations, with a general rate of 6 percent across all sectors, but 23 percent in the manufacturing sector (See Section 3.1.7. for details).
- » The proportion of women in managerial positions nationwide is at the low level of 18 percent, and is even lower in the manufacturing sector at 15 percent (See 3.1.8. for details).

Table 17: Primary issues and their negative impact on WE in Türkiye

	Negative impact on WE in working life (General)	Negative impact on WE in manufacturing	
Educational attainment			
Household structure and care responsibilities			
Cultural factors			
Informality			
Skill gap and skill mismatch			
Gender <u>pay</u> gap			
Female representation in high positions			
Level of the negative effect on WE:	Low 	Moderate 	High  Very high 

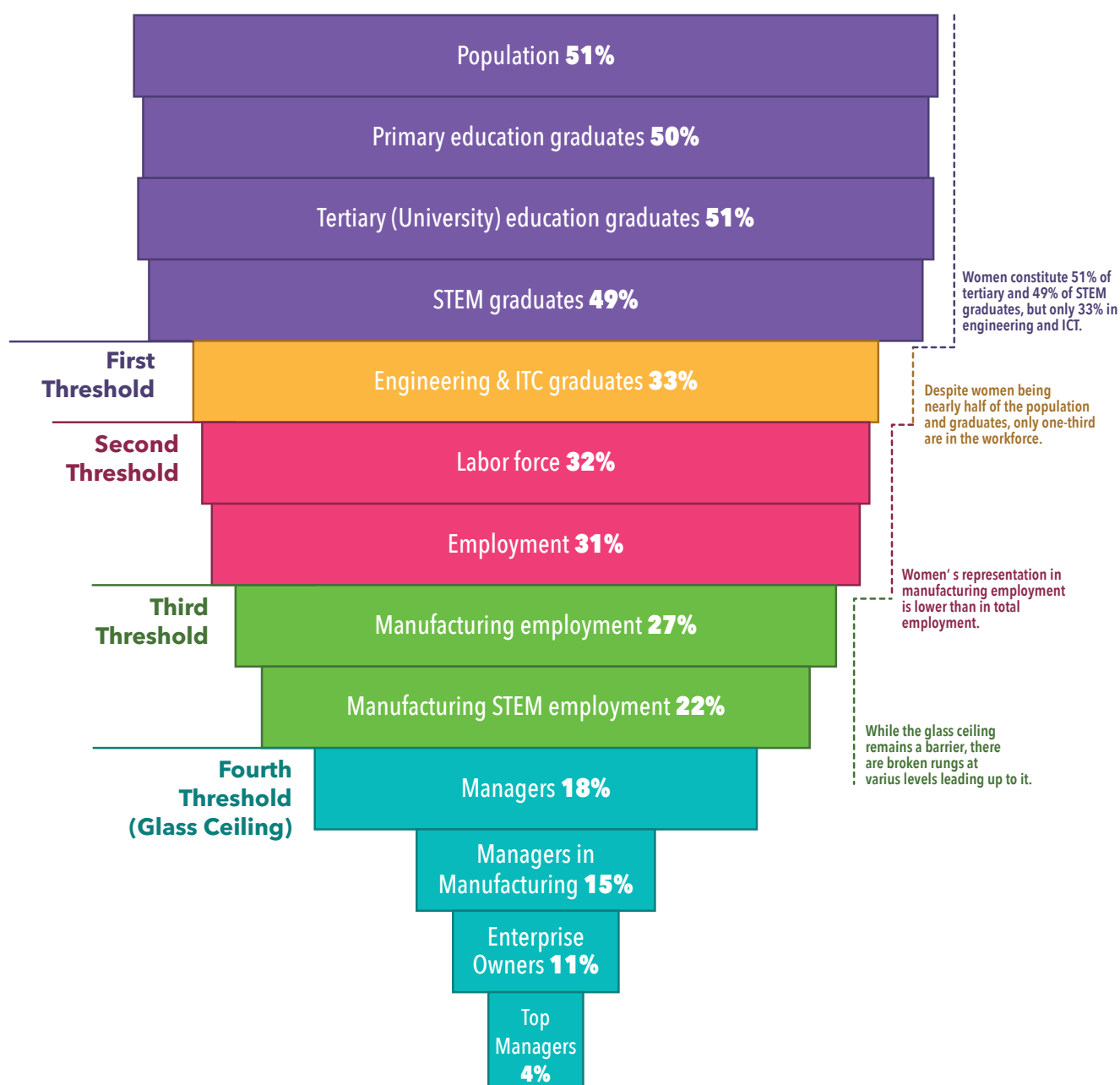
Source: PAL elaboration

It can be clearly understood from the above discussions (related to educational attainment, care burden, wage gap, gender stereotypes and occupational segregation) that the disadvantages and hurdles faced by women are particularly pronounced in the manufacturing sector. In the inverted pyramid model that has been created, women are subordinated and excluded from the workforce due to the disadvantages they face in various realms of public and private life. Educational attainment, care burden, wage gap, gender stereotypes, occupational segregation, and lower representation in entrepreneurship and management positions are just some of the issues discussed within the scope of this report.

- » The ratio of women, representing half of the population (at the top layer of the pyramid), decreases through the next four layers of the pyramid due to the gender imbalance in educational participation (in the second and third layers). In Türkiye, the participation of women in education is almost equal to that of men, accounting for 47 percent of the graduates at both the primary and university levels (2012–2022 average). There has been a concerted effort to address the remaining 3 percent gender gap in education, yet the disparity in the business sector can only be partially attributed to educational involvement.
- » The **first gender threshold** appears in education. In tertiary education, women are less represented in certain fields, notably engineering and information technologies, which is a reflection of the occupational segregation of women in professional education. While women constitute 41 percent of all STEM graduates, this percentage falls to 33 percent in the engineering and ICT fields (2012–2022 average).
- » The **second threshold** appears in the realm of work. Despite women accounting for 51 percent of the population and 47 percent of the educated population, they make up only 32 percent of the workforce, and 31 percent of those employed among the population aged 15 and older (2012–2022 average).
- » The **third threshold** in the pyramid appears in the manufacturing realm, where female representation declines to 27 percent, with a mere 22 percent working in STEM-related occupations. As can be seen from the pyramid, occupational segregation limits the participation of women in manufacturing roles, and particularly in manufacturing-related STEM occupations.
- » Finally, the **fourth threshold** is the vertical occupational segregation, or glass ceiling, encountered by women. That is to say, the decline in female representation is more pronounced in managerial positions, with women holding only 18 percent of such roles across all sectors, and only 15 percent within the industrial sectors. This gender imbalance at the executive level is attributable to various factors encountered at different stages of women's lives, affecting equality in gender representation. Figure 47 below clarifies hurdles faced by women throughout their lives, from birth to managerial levels in working life, referred to in different studies as the glass ceiling, broken rung or sticky floor.



Figure 47: Female Share in Various Social and Sectoral Segments in Türkiye, 2012-2022 avg, %



Source: ILOStat, OECD, TurkStat, YÖK, PAL Calculations

3.2. Manufacturing Industry in Türkiye: Sub-sectors and priority issues

3.2.1. Women's Empowerment Potential in Manufacturing Sub-sectors

Leading subsectors with female density

Three manufacturing subsectors account for 62 percent of female employment in manufacturing, namely apparel, textiles and food products, providing employment to more than 1 million women. The apparel sector has the highest female employment share, at 33 percent, with a female workforce of 548,500, accounting for a 51 percent share of the total jobs in the sector. The textiles sector follows, with a 16 percent share in female employment and 38 percent female share within the sector, while the food products sector comes third, contributing to 13 percent of female employment in manufacturing and a 31 percent female share within the sector. Other sectors with notable female employment include electrical equipment and rubber and plastics, each of which holds a 4 percent share of female employment. Fabricated metal products, non-metallic mineral products, motor vehicles and other manufacturing sectors each contribute a 3 percent share to female employment. The shares of women in the machinery and equipment, chemical and furniture sectors are at a lower level, in the range of 2–3 percent, while the lowest employment figures for women are observed in the beverage, tobacco, and coke and petroleum products sectors, with shares well below 1 percent.

Table 18: Female employment in manufacturing subsectors, Türkiye, 2022

	Share of subsector in total female manufacturing employment	Number of female employees (thousand)	Ratio of female employment in the subsector to total employment
14: Apparel	33%	548.5	51%
13: Textiles	16%	266.7	38%
10: Food products	13%	218.3	31%
27: Electrical equipment	4%	65.6	25%
22: Rubber and plastic products	4%	62.9	21%
25: Fabricated metal products	4%	57.9	13%
23: Non-metallic mineral products	3%	49.3	15%
29: Motor vehicles, trailers	3%	48.7	17%
32: Other manufacturing	3%	46.7	34%
28: Machinery and equipment	3%	42.2	13%
20: Chemicals	2%	36.6	25%
31: Furniture	2%	31.3	9%
15: Leather and related products	2%	30.0	21%
17: Paper products	2%	26.2	20%
24: Basic metals	2%	24.8	10%
33: Repair and installation of machinery and equipment	1%	18.2	11%
26: Computers, electronics and optical equipment	1%	17.6	26%
18: Printing and media	1%	15.7	24%
21: Pharmaceuticals	1%	14.9	31%
16: Wood and cork products	1%	10.8	10%
30: Other transport equipment	1%	8.4	9%

11: Beverages	0.2%	3.2	16%
12: Tobacco products	0.1%	2.3	24%
19: Coke and petroleum products	0.04%	0.7	7%

Source: ILOStat, PAL Calculations

Note: The numbers represent both informal and formal employment in the economy, and so may differ from those published by the Social Security Institution.

While Türkiye's low-technology manufacturing base is transitioning to take on more medium-high and high technology roles, it would appear that the employment of women is not keeping up with this transformation. In 2022, medium technology-level industries were responsible for 80 percent of exports, up from 69 percent in 2000, and employed 30 percent of the total female workforce. The average female employment rate in low-medium technology companies is 16 percent, compared to 19 percent in medium-high technology companies. For example, the motor vehicle sector in Türkiye is one of the country's leading exporters, but provides employment to only 50,000 women, accounting for only 19 percent of the workforce. In contrast, women working in low and high technology enterprises accounted for 37 percent and 36 percent of the workforce, respectively, in 2022.

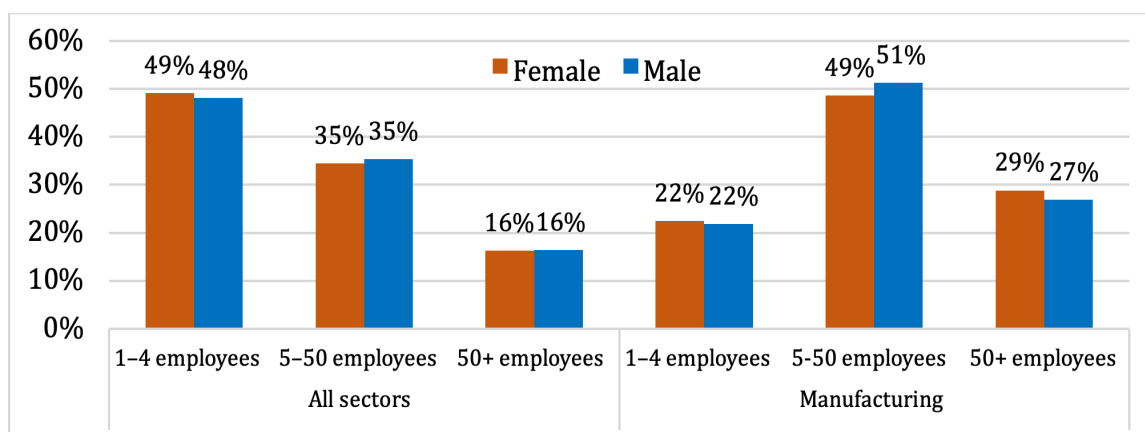
Table 19: Female employment and export shares based on technological classification, 2022

	% of women in total manuf.	# of women in manuf.	% of manuf. exports	Manuf. exports
Low technology	37%	869,509	19%	74.1
Low-medium technology	16%	218,203	58%	225.1
Medium-high technology	19%	171,076	22%	85.3
High technology	36%	36,434	1%	4.1
Total	28%	1,295,222	100%	388.7

Source: SGK, TurkStat, PAL calculations

Roughly 50 percent of employment in Türkiye is concentrated in the smallest company category (1–4 employees), while in the manufacturing sector, nearly 50 percent of companies have 5–50 employees, with close to 30 percent in medium- and large-sized companies. Figure 48 illustrates the distribution of male and female employees across companies of different sizes in Türkiye in 2022, both for the entire economy, and specifically for the manufacturing sector. Across all sectors, the majority of employees, regardless of gender, are employed in the lowest company category (1–4 employees), in which the representation of men and women in employment is almost equal at 49% and 48%, respectively. Within the manufacturing sector, the largest share of employees can be found in the small company category (5–50 employees), which employ 51 percent of women and 49 percent of men. Medium-large sized companies (50+ employees), on the other hand, employ a slightly higher percentage of females (29%) than males (27%), which is not as pronounced in the small company categories. [CNE7]

Figure 48: Distribution of employees among companies' size, all economy and manufacturing, male and female, Türkiye, 2022

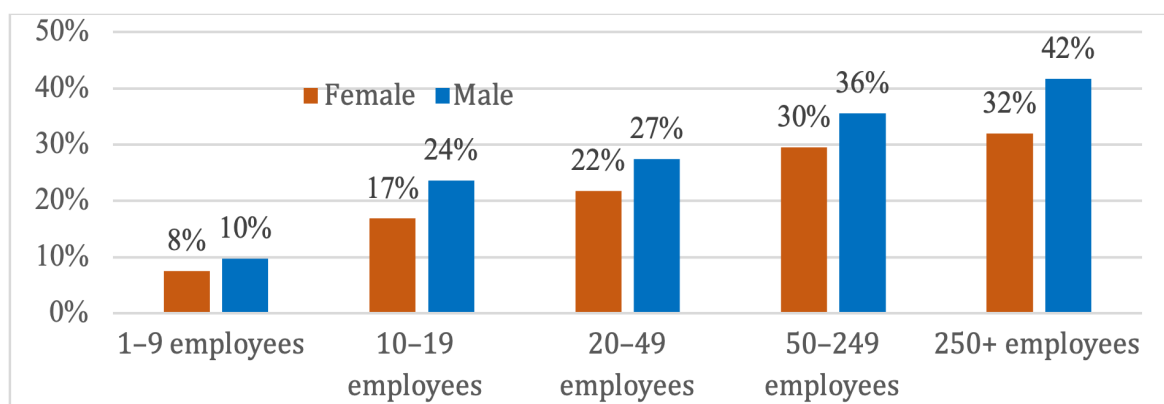


Source: ILOStat, PAL Calculations

Note: The numbers represent both informal and formal employment in the economy, and so may differ from the employment statistics published by the Social Security Institution.

A comparison of the ratio of male to female workers in the manufacturing sector in Türkiye reveals it to be a **male-dominated sector**. While the male dominance in employment in the manufacturing sector continues, the share of women increases gradually as the company size increases. In manufacturing companies with 1–9 employees, only 8 percent are female, but this share increases to 32 percent in those with 250+ employees.

Figure 49: Share of Manufacturing Employment in the Overall Economy by Company Size and Gender – Türkiye, 2022



Source: TurkStat, PAL Calculations

The distribution of women employed in different sub-sectors reveals a notable variation across different company sizes. In the apparel and food sectors, women are primarily employed by companies with 5–50 employees and by medium to large-scale companies, while in the textiles sector there is a greater concentration of women in companies with 1–4 employees. An analysis of the overall distribution of female employees across all manufacturing subsectors in Türkiye reveals that 22 percent are employed in very small companies with 1–4 employees, nearly half (49%) work in small companies with 5–50 employees, and 29 percent are employed in medium–large-sized companies with more than 50 employees. The total of 1.6 million female employees across all subsectors suggests that small companies are the leading employers of women in the manufacturing sector, although they have substantial representation also in larger companies.

However, the share of women in total employment by firm size conceals the differences among subsectors. For instance, in the apparel subsector, women are more evenly distributed across all company sizes, with a relatively lower concentration in very small (1–4 employees) companies. In contrast, a substantial 41 percent of female employment in the textile sector is in the smallest company category, which is significantly higher than the overall average. In the motor vehicle and trailer, and electrical equipment subsectors, women are more likely to be employed in small and medium–large-sized companies, indicating a different employment structure in these companies when compared to the total average. These differences reflect the sectoral dynamics at play within each manufacturing subsector.

Table 20: Distribution of female employees among company sizes in manufacturing subsectors, Türkiye, 2022

Distribution of female employees among company size				
	# of female employees (thousand)	1-4 employees	5-50 employees	50+ employees
14: Apparel	548.5	18%	51%	31%
13: Textiles	266.7	41%	35%	23%
10: Food products	218.3	28%	44%	28%
27: Electrical equipment	65.6	8%	66%	26%
22: Rubber and plastic products	62.9	13%	50%	36%
25: Fabricated metal products	57.9	17%	53%	31%
23: Non-metallic mineral products	49.3	16%	53%	32%
29: Motor vehicles, trailers	48.7	2%	68%	31%
32: Other manufacturing	46.7	40%	35%	25%
28: Machinery and equipment	42.2	15%	51%	34%
20: Chemicals	36.6	10%	51%	38%
31: Furniture	31.3	19%	51%	30%
15: Leather and related products	30.0	24%	47%	29%
17: Paper products	26.2	15%	58%	27%
24: Basic metals	24.8	5%	62%	32%
33: Repair and installation of machinery and equipment	18.2	39%	55%	5%
26: Computers, electronics and optical products	17.6	5%	59%	36%
18: Printing and media	15.7	48%	45%	7%
21: Pharmaceuticals	14.9	0%	68%	32%
16: Wood and cork products	10.8	34%	38%	28%
30: Other transport equipment	8.4	0%	86%	14%
11: Beverages	3.2	18%	32%	51%
12: Tobacco products	2.3	0%	52%	48%
19: Coke and petroleum products	0.7	0%	100%	0%
Total of manufacturing	1647.5	22%	49%	29%

Source: ILOStat, PAL Calculations

Note: These numbers represent both informal and formal employment in the economy, and so may differ from the figures published by the Social Security Institution.

Prominent subsectors with greater participations of women

The gender wage gap in Türkiye's manufacturing subsectors provides a revealing glimpse into the state of gender inequality within the industry. In 2022, The "other transport equipment" subsector was a notable exception to the typical average hourly wage gap, with women earning 11 percent more than men, although they represented a smaller proportion of the workforce at approximately 9,000 thousand female employees. In contrast, within the wearing apparel subsector, women make up 54 percent of the workforce, significantly higher than the manufacturing average. The gender wage gap here is 6 percent, which is notably below the manufacturing average of 12 percent, indicating that this subsector not only employs more women but is also closer to achieving pay equity when compared to the overall manufacturing sector. The coke and petroleum products subsectors has the greatest pay disparity, with a 34 percent gender wage gap and only 15 percent female representation, equating to a mere 1,438 women in employment (Table 21). The food

products subsector stands above the manufacturing average with a 36 percent female share, compared to the average of 33 percent, and an 18 percent gender wage gap, which is higher than the overall manufacturing gap of 12 percent. This suggests that while women are better represented in the "food products" subsector than in overall manufacturing sector, they also face a larger wage gap.

There is no single explanation for the relationship between the gender wage gap and the representation of women within the subsector. Subsectors with a higher female share, such as pharmaceuticals with 40 percent and food products with 36 percent, also feature a substantial gender wage gap of 18 percent. This suggests that while women are well-represented in these areas, the inequality in pay persists. Conversely, in subsectors such as machinery and equipment, in which women constitute only 16 percent of the workforce, a gender wage gap of 17 percent persists, indicating that the presence of women in the workforce does not necessarily translate into parity in pay. These statistics point out that where representation and pay equity do not always move in tandem and achieving gender equality in the workplace needs consideration of many factors.

Table 21: Gender wage gap in manufacturing subsectors, with female share and number of female workers, registered employment, Türkiye, 2022

	Gender wage gap	Female share	# of formal female employees (thousand)
14: Apparel	-11%	9%	8.7
13: Textiles	1%	35%	31.6
10: Food products	6%	54%	395.3
27: Electrical equipment	9%	30%	24.3
22: Rubber and plastic products	9%	18%	36.5
25: Fabricated metal products	13%	28%	137.7
23: Non-metallic mineral products	15%	19%	49.6
29: Motor vehicles, trailers	16%	28%	13.8
32: Other manufacturing	16%	17%	75.7
28: Machinery and equipment	17%	16%	35.5
20: Chemicals	18%	36%	195.2
31: Furniture	18%	40%	16.6
15: Leather and related products	19%	17%	13.3

17: Paper products	20%	16%	39.8
24: Basic metals	20%	34%	19.9
33: Repair and installation of machinery and equipment	21%	21%	16.1
26: Computers, electronics and optical products	21%	25%	48.0
18: Printing and media	22%	20%	3.6
21: Pharmaceuticals	22%	23%	58.5
16: Wood and cork products	24%	26%	29.3
30: Other transport equipment	24%	9%	17.4
11: Beverages	25%	15%	25.4
12: Tobacco products	32%	31%	2.1
19: Coke and petroleum products	34%	15%	1.4
Total of manufacturing	12%	33%	1,295

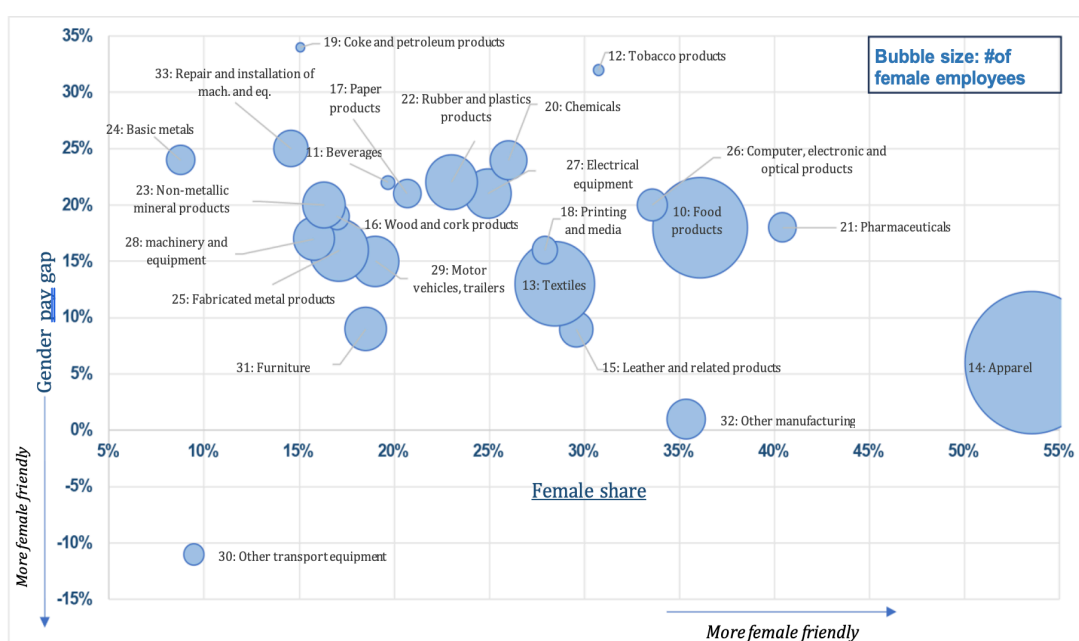
Source: Social Security Institution, PAL Calculations

Gender wage gap: (Average male earnings - Average female earnings)/Average male earnings

Note: The numbers represent both informal and formal employment in the economy, and so may differ from those published by TurkStat and ILOStat.

While sectors such as wearing apparel perform better in gender equality in terms of wage gap, female representation and employment numbers, most of the manufacturing subsectors continue face significant challenges in female employment. Figure 50 presents a comprehensive overview of the gender wage gap, the proportion of female employment and the actual number of women employed in Türkiye's manufacturing subsectors, in which the apparel subsector is particularly prominent, and the other manufacturing, leather products and food products are relatively more female-friendly. Despite these positive examples, the larger landscape of the manufacturing subsectors has room for significant improvement, as most perform poorly in terms of pay equity and female representation.

Figure 50: Prominent sectors in terms of gender wage gap, female share and female employment, Türkiye, 2022

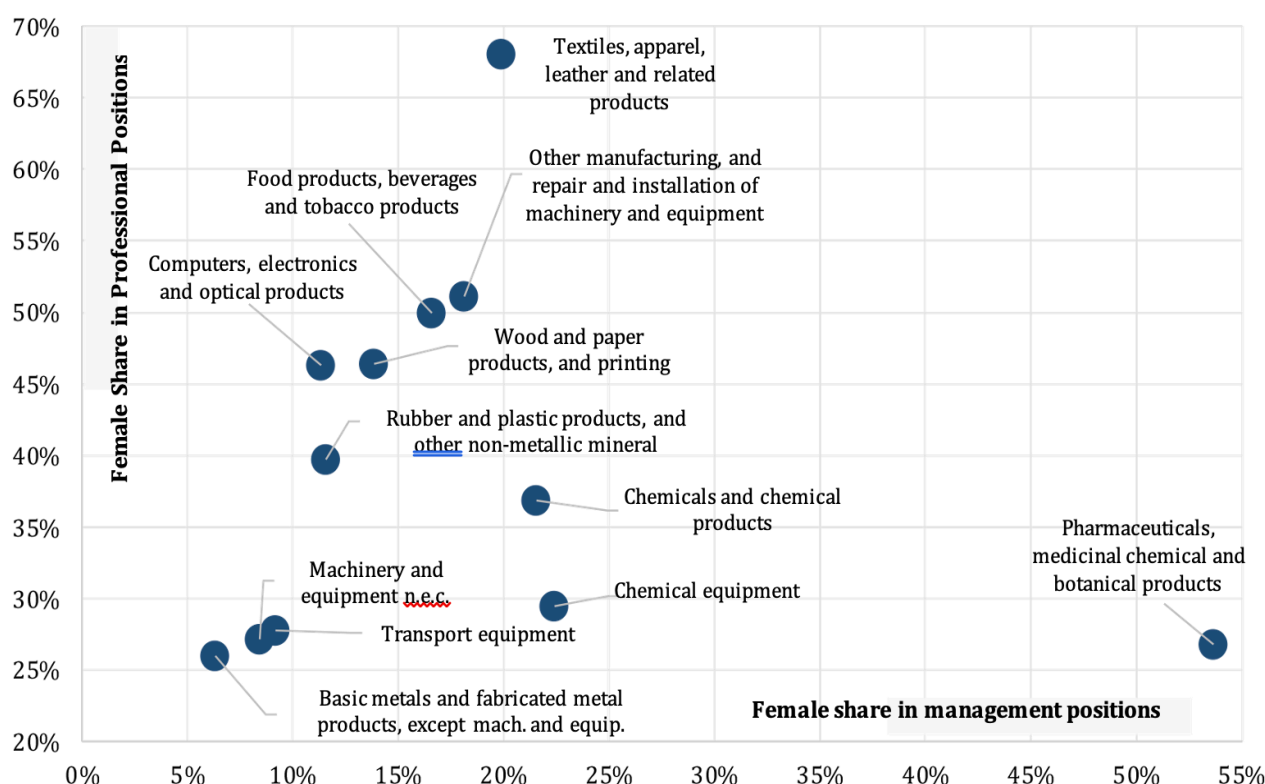


Source: Social Security Institution, PAL Calculations

Note: The numbers represent formal private sector employment and so may differ from those published by TurkStat and ILOStat

The distribution of women in higher-level occupations remains uneven, reflecting the continued inequality seen in the manufacturing subsectors. Figure 51 presents a comparison of the level of female participation in occupations with greater responsibilities in the various manufacturing sectors. The pharmaceutical sector is particularly noteworthy, with over 50 percent of its managerial occupations employed by women. Similarly, the textiles and wearing apparel sectors boast a strong female presence with over 65 percent of professional occupations held by women, while the food product and other manufacturing sectors perform well with over 50 percent of professional positions occupied by women. While some industries show demonstrate inclusivity at the professional and managerial levels, there are numerous sectors in which less than 25 percent of managerial positions are held by women, indicating room for improvement in the provision of equal leadership opportunities. This gap highlights the need for continued efforts to break down barriers and promote gender diversity in the echelons of management and specialised professions.

Figure 51: Shares of female in high skilled occupations (professionals and managers) by industries, Türkiye, 2022



Source: ILOStat, PAL Calculations

Note: These numbers refer to formal private sector employment and so may differ from the figures published by TurkStat and ILOStat.

Prominent subsectors in gender-friendly transformation process

Within Türkiye's manufacturing landscape, the increase in formal employment for women in various subsectors is indicative of the changes being witnessed in gender dynamics in the workplace. The apparel subsector is particularly noteworthy, not just for its high concentration of female workers, but also for its significant increase in female employment from 2010 to 2022. In this period, some 217,9000 new jobs were created for women, accounting for 63 percent of the subsector's total employment growth, underlining not only the role of the sector as a leading employer of women, but also the growing presence of women in the manufacturing sector. The food products subsector has also seen a remarkable uptick in female employees, recording an increase of 112,800 thousand female employees, representing 62 percent of the total employment surge. Away from these strongly performing subsectors, the share of women in employment growth in other manufacturing subsectors has been relatively limited.

Several of Türkiye's manufacturing subsectors stand out due to their higher-than-average share of women in employment growth, indicating a positive shift towards gender inclusivity. In the leather and related products subsector, for instance, women account for 45 percent of the growth in employment, equating to 16,400 new jobs. Similarly, the "Other Manufacturing" subsector has seen a substantial increase in employment, with 24,800 new jobs taken by women, representing 42 percent of the subsector's growth. The "Pharmaceuticals" and "Computers, Electronics and Optical Products" subsectors have also made significant strides in this regard, providing 13,300 and 9,4000 thousand new jobs to female employees, respectively, both accounting for 43 percent of their total employment growth. These numbers indicate a positive transformation in gender diversity in the workforce within these progressive fields.

Conversely, there are subsectors in which the growth in female employment has not matched the manufacturing average, reflecting ongoing challenges the achievement of gender equality. The machinery and equipment subsector, for example, has achieved modest growth in the share of female employees, reaching 23 percent in total employment growth with an addition of only 16,300 jobs for women. Similarly, the non-metallic mineral products, repair and installation of machinery and equipment, and beverages subsectors have recorded female employment growth figures of 34, 33 and 32 percent, respectively, all of which are below the average for the manufacturing sector. These numbers highlight areas where gender disparity remains a challenge, emphasising the need for targeted initiatives to bolster the inclusion of women in the workforce and equitable growth across all subsectors.

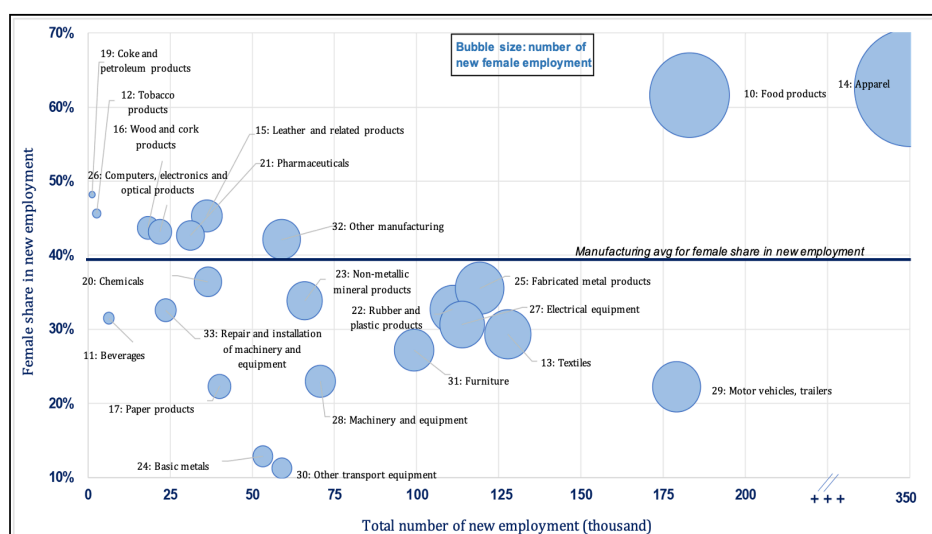
Table 22: Increase in the formal employment of women in manufacturing subsectors, and the share of women in the total increase, Türkiye, 2010–2022

	Gender wage gap	Female share	# of formal female employees (thousand)
14: Apparel	217.9	348.3	63%
10: Food products	112.8	183.1	62%
25: Fabricated metal products	42.4	119.2	36%
29: Motor vehicles, trailers	39.9	179.1	22%
13: Textiles	37.5	127.7	29%
22: Rubber and plastic products	36.3	111.0	33%
27: Electrical equipment	34.9	113.8	31%
31: Furniture	27.0	99.2	27%
32: Other manufacturing	24.8	58.9	42%
23: Non-metallic mineral products	22.3	65.9	34%
15: Leather and related products	16.4	36.2	45%
28: Machinery and equipment	16.3	70.8	23%
21: Pharmaceuticals	13.3	31.2	43%
20: Chemicals	13.3	36.5	36%
26: Computers, electronics and optical products	9.4	21.9	43%
17: Paper products	8.9	40.1	22%
16: Wood and cork products	8.0	18.3	44%
33: Repair and installation of machinery and equipment	7.7	23.7	33%
24: Basic metals	6.9	53.2	13%
30: Other transport equipment	6.6	59.0	11%
11: Beverages	2.0	6.4	32%
12: Tobacco products	1.2	2.6	46%
19: Coke and petroleum products	0.6	1.2	48%
18: Printing and media	-0.7	-15.0	4%
Total manufacturing	705.6	1792.4	39%

Source: Social Security Institution, PAL Calculations

Note: These numbers refer to formal private sector employment and so may differ from the figures published by TurkStat and ILOStat.

Figure 52: Increase in formal female employment in manufacturing subsectors and the female share in the total increase, Türkiye, 2010–2022

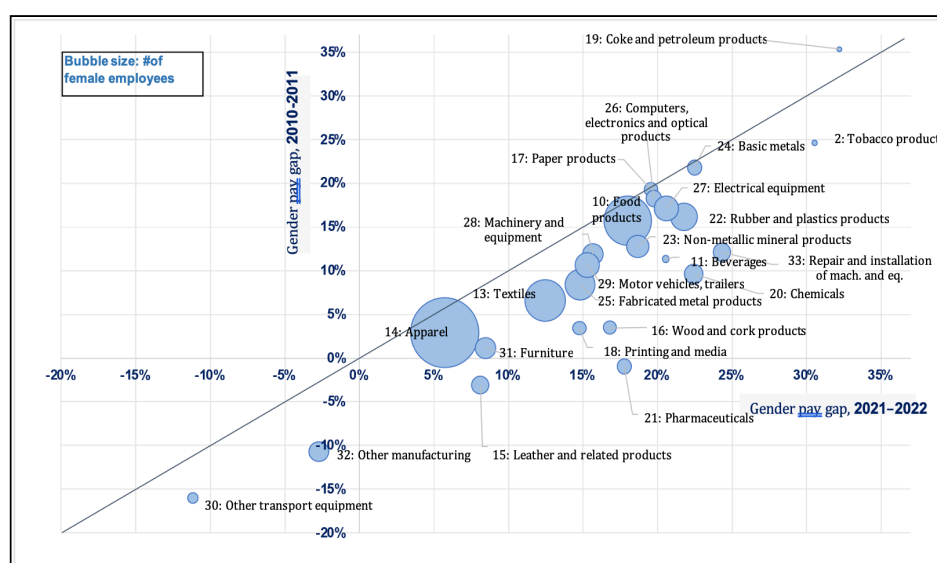


Source: Social Security Institution, PAL Calculations

Note: The numbers represent formal private sector employment and so may differ from those published by TurkStat and ILOStat.

An analysis of the gender wage gap in Türkiye's manufacturing subsectors between 2010 and 2011, and 2021 and 2022 reveals stagnation, or in many cases, regression in gender equity in terms of pay. Contrary to expectations, the majority of subsectors have experienced an increase in the gender wage gap, with sectors such as Food Products, Beverages and Tobacco showing increases of 2 percent, 10 percent and 6 percent, respectively. While some subsectors, such as "Other Manufacturing" and "Leather Related Products" have seen the gap diminish slightly, they are exceptions rather than the rule. This increases in pay disparity noted reveal that despite the ongoing discussions related to gender equity, tangible progress in efforts to close the wage gap within the manufacturing sector remains elusive.

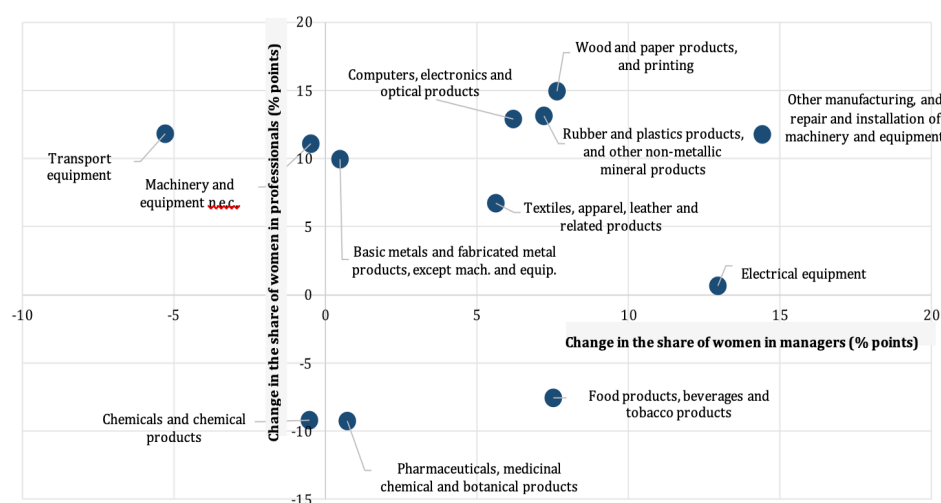
Figure 53: Gender wage gap in manufacturing subsectors, Türkiye, 2021–2022 average compared to 2010–2011 average



Source: Social Security Institution, PAL Calculation

The increase in the representation of women in professional and managerial occupations in Türkiye over the last decade paints a more optimistic picture in certain manufacturing subsectors, despite having started from a very low base. Over the period in question, most manufacturing sectors in Türkiye have experienced a notable rise in the proportion of women in both managerial and professional occupations (Figure 54), although this increase may appear more positive due to the initially low starting point. The electrical equipment and other manufacturing subsectors have witnessed the most significant advances in managerial representation. The proportion of female managerial occupations in the electrical equipment sector [CNE9] increased from 9 percent in 2012 to 22 percent in 2022. While the food, beverages and pharmaceutical subsectors have seen an increase in managerial occupations for women, there has been a decline in professional occupations. Furthermore, in the food and beverage sector, the proportion of female managers increased from 9 percent in 2012 to 17 percent in 2022, while the share of women in professional occupations declined from 58 percent to 50 percent. In the pharmaceutical sector, the ratio of women in management positions remained stable at 53 percent and 54 percent [CNE10], whereas the proportion of women in professional occupations dropped from 36 percent to 27 percent. Conversely, the basic metals, computer and electronics, wood, paper and printing products, and rubber and plastics sectors have experienced increases in women in professional occupations exceeding 10 percent, with the textile and apparel subsectors have seen a 7 percent increase. These sectors have also achieved upward trends in managerial occupations for women. In the basic metals sector, the proportion of female managers remained steady at 6 percent between 2012 and 2022, while the share of women in professional occupations increased from 16 percent to 26 percent.

Figure 54: Shares of women in high skilled occupations (professionals and managers) by industries, Türkiye, 2021–2022 average compared to 2010–2011 average



Source: ILOStat, PAL Calculations

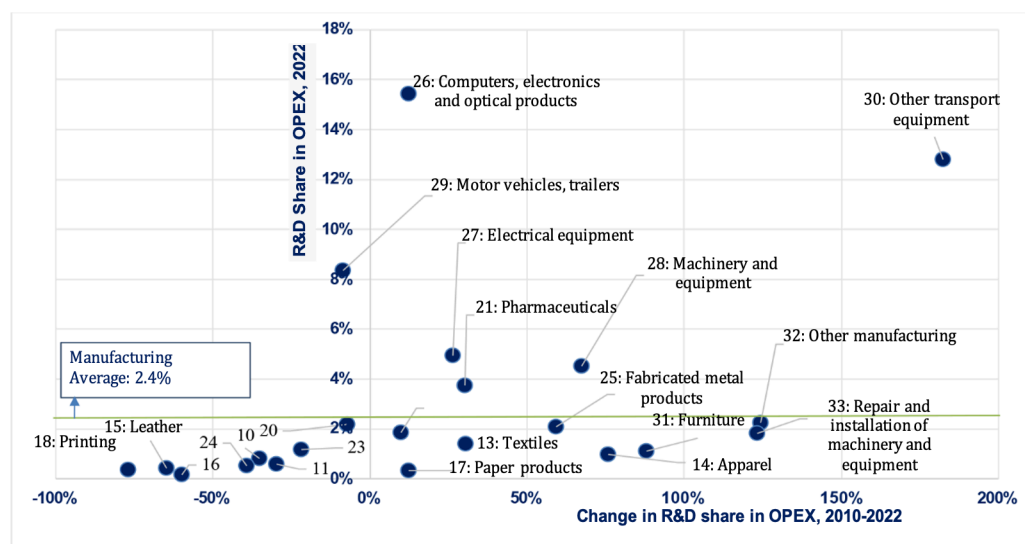
Note: These numbers represent formal private sector employment and so may differ from those published by TurkStat and ILOStat

R&D performance of subsectors

R&D investments are critical for the creation of environments that are conducive to digitisation and automation. Figure 55 and Table 23 offer insights into the R&D performances of various manufacturing subsectors, revealing the five subsectors recording the highest shares of R&D expenditures to be (1) computers, electronics and optical products (15%), (2) other transport equipment (13%), Motor vehicles and trailers (8%), (4) Electrical equipment (5%) and (5) Machinery and equipment (5%). These industries not only allocate significant resources to R&D, but have also shown substantial increases in R&D intensity over the past decade. For example, the Transport Equipment subsector observed a 182 percent increase while Machinery and Equipment, Electrical Equipment and Computers, Electronics and Optical Product sectors have witnessed increases of 67 percent, 26 percent and 12 percent, respectively. Despite some subsectors experiencing a decrease in R&D density, such as Motor Vehicles, the overall trend points towards an upward trajectory. While some sectors such as Other Manufacturing, Metal Products, Machinery Repairs, Textiles and Furniture have a low share of R&D expenditures at 1–2 percent, their growth can be considered striking.

The growth of R&D in manufacturing not only provides opportunities for women in high-tech roles but also promotes diverse employment opportunities and encourages leadership positions for women. R&D-intensive environments encourage a shift to more liberal work cultures, and require a highly skilled workforce within the traditionally male-dominated manufacturing companies. Opportunities are thus arising for professional women to enter the manufacturing sectors, particularly those with STEM education in technology-driven roles. Aside from the employment opportunities that are becoming available, women are also gaining access to leadership roles, challenging the traditional gender mismatch and fostering a collaborative environment that values diverse perspectives and promotes a more gender-balanced workforce. R&D is thus paving the way for women to enter the historically male-dominated sectors, promoting the creation of comfortable and safe work environments that support and retain female talent. R&D-driven industries often require a variety of skill sets that go beyond just technical knowledge, such as project management, analytical thinking and creative problem-solving, and the growth in these areas is opening up a wider range of opportunities for women from diverse educational and professional backgrounds.

Figure 55: Average R&D share in operational expenses of manufacturing by subsectors (2022), and changes in the share of R&D in operational expenses between 2010 and 2012, Türkiye



Source: Girişimci Bilgi Sistemi - GBS (Entrepreneurial Information System), PAL Calculations

Table 23: Value and share of R&D in operational expenses in manufacturing subsectors (2022), and changes in share of R&D in operational expenses between 2010 and 2012, Türkiye

	R&D density - 2022 (Share of R&D expenses in operational expenses)	Increase in R&D density (2010-2022)	R&D expense per company - 2022 (Turkish Lira, 2022 Prices)
26: Computers, electronics and optical products	15%	12%	863,856
30: Other transport equipment	13%	182%	628,725
29: Motor vehicles, trailers	8%	-9%	939,696
27: Electrical equipment	5%	26%	306,531
28: Machinery and equipment	5%	67%	105,057
21: Pharmaceuticals	4%	30%	654,223
32: Other manufacturing	2%	124%	32,670
20: Chemicals	2%	-7%	165,150
25: Fabricated metal products	2%	59%	33,029
22: Rubber and plastics products	2%	10%	56,732
33: Repair and installation of machinery and equipment	2%	123%	21,142
13: Textiles	1%	31%	39,964
23: Non-metallic mineral products	1%	-22%	45,426
31: Furniture	1%	88%	13,787
14: Apparel	1%	76%	16,703
10: Food products	1%	-35%	28,810
11: Beverages	1%	-30%	69,406
24: Basic metals	1%	-39%	42,358
15: Leather and related products	0%	-65%	5,277
18: Printing and media	0%	-77%	4,292
17: Paper products	0%	12%	17,299
16: Wood and cork products	0%	-60%	3,112

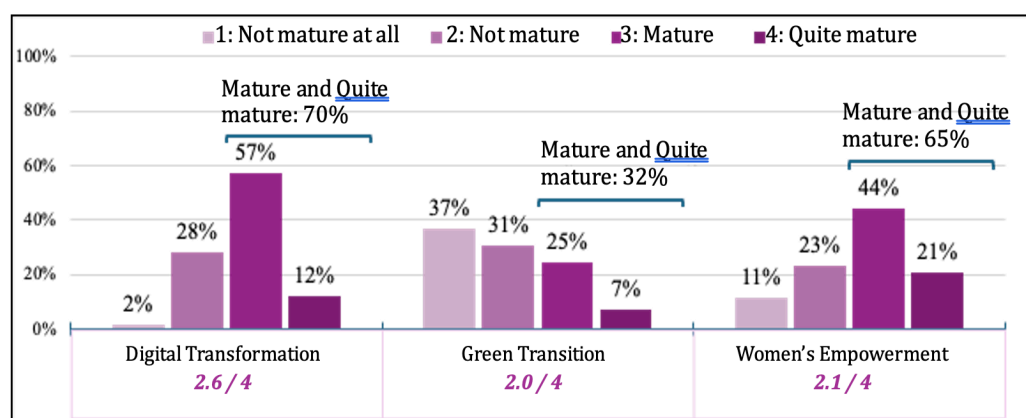
Source: Girişimci Bilgi Sistemi - GBS (Entrepreneurial Information System), PAL Calculations

3.2.2. Current Situation and Company Priorities

Self-assessment of companies regarding their digital transformation, green transition and women's empowerment.

When asked to rate their progress in the digital transformation and WE in employment, 70 percent and 65 percent of companies, respectively, considered themselves mature. According to the company survey conducted as part of the Model Development Project for Women's Empowerment in the Manufacturing Industry (WE Company Survey), 57 percent of the respondent companies assessed their digitalisation maturity level at 3 out of 4, while 12 percent classified themselves as very mature, with a 4/4 ranking. In terms of WE, 44 percent of the respondents rated themselves as mature, and 21 percent as very mature. When quizzed on the maturity of their green transition efforts, 32 percent gave themselves maturity rankings of 3 or 4 (with 25% considering themselves mature and 7 percent very mature). Although company's perceive themselves to be lagging slightly behind in the green transition, the responses across all three transformation areas exceed a maturity level of 2 out of 4. On average, companies rate their maturity as follows: 2.8 in digital transformation, 2.7 in WE and 2.0 in green transition.

Figure 56: Self-Assessment of Companies' Maturity Levels in Digital Transformation, Green Transition and WE (1–4)



Source: WE Company Survey, PAL Analysis

The key drivers shaping the policies and approaches of companies to the digital transformation, and green transition and WE have been identified through desk research and in-depth interviews as follows:

- » Priorities of senior management
- » Responsibilities to/expectations of consumers and customers
- » Reporting requirements related to sustainability
- » Requests/expectations of financial institutions
- » Responsibilities to/expectations of shareholders and investors
- » Demands from internal company departments (e.g., Human Resources)
- » Requirements and expectations of business clients

The survey participants who considered themselves mature in the three areas were asked to identify the main motivational drivers from these sources, and almost all were attributed a high degree of importance, although the order of importance of these drivers varied for the different transformation areas:

- » **Digital Transformation:** The primary motivational drivers for companies that consider themselves mature in their digital transformation were market and competitive conditions, as well as the demands of internal company departments. These two drivers were both attributed an impact level of 3.5 out of 4. The requirements and expectations of business clients and financial institutions were also influential, scoring 3.2.
- » **Green Transformation:** The motivational factors driving the green transition were similar to that of the digital transformation. The companies gave a score of 3.5 to the demands of internal departments and 3.4 to market conditions. Expectations of business clients was rated with a 3.3 level of influence, while the demands of internal departments scored 3.2.
- » **Women's Empowerment:** For WE, the most significant motivational driver was the requirements and expectations of business client, given a rating of rated of 3.6 out of 4, while the demands of internal departments and financial institutions scored 3.4 and 3.3, respectively. Finally, responsibilities to/expectations of shareholders or investors (3.4), sustainability reporting requirements, responsibilities to/expectations of consumers and customers and the priorities of the senior management were all attributed an importance level of 3.3.

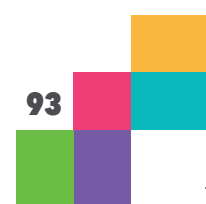
The companies were asked to rank skill/competence, knowledge/awareness and budget/financing as enablers for mature companies or barriers to immature companies in the three transformation areas.

- » For mature companies, Skill/competence was a more significant enabler for their digital transformation and WE than for their green transition, for which it held less importance. Among the mature companies, skill/competence was identified as the primary facilitating factor in their digital transformation (32%) and WE (31%), whereas this rate was only 19 percent for the green transition. Similarly, budget/financing was considered the most critical success factor for the green transition, cited by 42 percent of mature companies, while the rate for both the digital transformation and WE was 32 percent. Knowledge and awareness was revealed to be the most highlighted enabler across all three transformation areas for mature companies.
- » For immature companies, the most significant barrier by far was budget and financing constraints, as identified by 83 percent of the less mature companies in the digital transformation, 73 percent in the green transition and 69 percent in WE. Other issues, such as skill/competence and knowledge/awareness, were considered barriers by significantly fewer companies. For instance, 16 percent of companies with a lack of maturity in WE identified skill/competence as barriers, while 15 percent pointed to knowledge/awareness.

Table 24: Enabling and Preventative Factors Encountered by Companies During the Transformation Process

The key factors <u>enabling</u> companies to achieve maturity in the relevant transformation topic:			
	Digital Transformation	Green Transition	Women's Empowerment
Skill/competence	32%	19%	31%
Knowledge/awareness	36%	40%	37%
Budget/financing	32%	42%	32%
The key factors <u>preventing</u> companies from maturity on the relevant transformation topic:			
	Digital Transformation	Green Transition	Women's Empowerment
Lack of skill/competence	6%	12%	16%
Lack of knowledge/awareness	10%	15%	15%
Lack of budget/financing	83%	73%	69%

Source: WE Company Survey, PAL Analysis



Digital transformation, green transition and women's empowerment practices

Various digital tools, green transition practices and women's empowerment policies have a direct effect on firms' performance in the relevant transformation areas. Beyond the self-assessment of companies regarding their progress in the digital transformation, green transition and women's empowerment (WE), the extent to which they utilised the relevant tools and policies was evaluated. The survey sought to provide a relatively more objective classification of the progress of companies in the transformation areas and to understand the underlying issues. Indexes were created based on the tools used in these areas, and scores were assigned to companies accordingly:

- » Digital Transformation Score: Companies were assigned scores out of 100 ranking their use of seven digital tools.
- » Green Transition Score: Companies were assigned scores out of 100 based on the presence of 10 green transition practices.
- » Women's Empowerment Score: Companies were assigned scores out of 100 based on the presence of six company policies and 39 specific practices aimed at strengthening women's employment.

Among the surveyed companies, 32 percent made use of ERP (enterprise resource planning) solutions, with an average digitalisation score of 37 out of 100. Cloud computing (53%) and robotic technologies and automation (51%) were the most widely adopted, while 32 percent of the surveyed companies used ERP systems, 12 percent used artificial intelligence and 34 percent used CRM (customer relations management) solutions. The usage rates of these tools across Türkiye were recorded as 30 percent, 5.5 percent and 17 percent, respectively. Technologies such as energy monitoring software (24%), Internet of Things (IoT) and machine-to-machine communication (10%) have lower adoption rates, suggesting that these more advanced or niche solutions are less integrated into company operations. Assuming that a company that uses all the mentioned digital tools gains a score of 100, the average score among the survey participants was 37, while those that considered themselves mature in terms of their digitalisation achieved an average score of 51.

Table 25: Prevalence of digital tools and digitalisation score

Digital Tools	Prevalence rate in the survey	Not currently in place but on the agenda
Internet of Things (IoT) and machine-to-machine communication	10%	22%
Artificial intelligence applications	20%	17%
Energy monitoring software	24%	13%
ERP (Enterprise Resource Planning)	32%	7%
CRM (Customer Relationship Management)	34%	13%
Robotic technologies and automation	51%	11%
Cloud computing	53%	10%

Overall digitalisation score:
37/100

- » Mature companies: 51
- » Immature companies: 4

*Assuming a score of 100 for a company that uses all green tools (Scoring 3 if the practice in question is in place, and 1 if they are on the agenda).

Source: WE Company Survey, PAL Analysis

The survey revealed varying rates of adoption of green transition practices among companies, with an average green score of 31 points. Energy efficiency solutions, adopted by 25 percent of companies, and waste management efforts, with a prevalence rate of 23 percent, were the most common practices. Additionally, 22 percent of the companies focused on R&D activities aimed at reducing emissions and solutions to extend the lifespan of products through repair, remanufacturing or reuse. Practices such as emission measurements and reduced carbon emissions in raw material procurement, each of which scored 19 percent, were somewhat less widespread, while green energy usage and training programmes for employees on the green transition were among the least adopted at 16 percent and 14 percent, respectively. All surveyed companies had green transition scores of 31 out of 100. Among those that considered themselves mature in this area based on subjective evaluations, the score rises to 53, while for those that do not see themselves as mature, the score drops to 21.

Table 26: Prevalence of green transition practices and green transition score

Green Transition Practices	Practices are in place	Not currently in place but on company agenda
Training programmes for employees on green transition	14%	47%
Awareness-raising activities for corporate and end consumers	15%	28%
Solutions to reduce carbon emissions in production processes	16%	43%
Use of green energy sources (rooftop solar panels, wind energy, etc.)	16%	20%
Solutions to reduce carbon emissions in raw material procurement	19%	43%
Emission measurements or calculations	19%	16%
Solutions to extend product lifespan (repair, remanufacturing, reuse)	22%	51%
R&D activities aimed at reducing emissions	22%	45%
Waste management (reducing waste, increasing recycling)	23%	46%
Energy efficiency solutions	25%	39%

Overall green transition score: 31/100

» Mature companies: 53

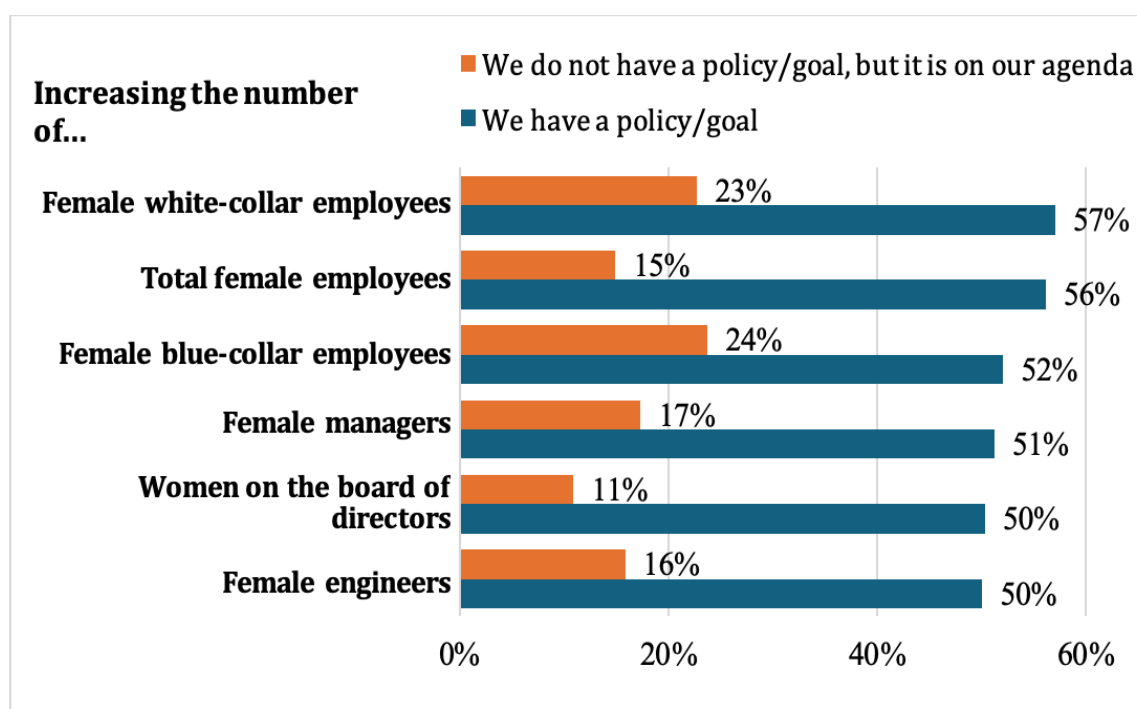
» Immature companies: 21

*Assuming a score of 100 for a company that uses all green tools (Scoring 3 if the practice in question is in place, and 1 if they are on the agenda).

Source: WE Company Survey, PAL Analysis

On average, 53 percent of the surveyed companies reported having policy goals aimed at increasing the number of women at various levels. Among the WE Company Survey participants, 56 percent of the companies reported having adopted policies to increase the total number of female employees. Some 57 percent of the companies reported having policies in place targeting an increase in the number of female white-collar employees, being the factor that scored the highest, which suggests that companies tend to prioritise efforts to increase female representation. This proportion was 52 percent for female blue-collar employees, 51 percent for women in managerial roles and 50 percent for women engineers. Additionally, 15 percent of companies stated that they currently had no policy in place aimed at increasing the total number of women employees, while 23 percent stated that while they do not yet have a policy aimed at increasing the number of female white-collar employees, it is on their agenda.

Figure 57: The prevalence of policies aimed at Women's Empowerment



Source: WE Company Survey, PAL Analysis

Overall, the implementation rates of practices supporting WE within companies are notably low. Only very basic steps have been taken regarding their practical needs, such as the provision of women's restrooms and changing rooms, and have been widely adopted across companies. In contrast, practices aimed at combating discrimination and ensuring representation are rare, highlighting a lack of efforts to address the deeper structural challenges to gender equality in the workplace. All companies recorded a WE score of 33 out of 100. In the companies that consider themselves mature in this area based on subjective evaluations, this score rises to 39, while for those that do not see themselves as mature, the score drops to 21. Although the prevalence of practices of this scope is extremely low, some companies stated that the issue was on their agenda, relatively increasing the average score.

- » Low Adoption Rates (3–10%): Practices aimed at providing specific support for women, such as menstrual leave, daycare transportation support and pregnancy nutrition packages, each with an adoption rate of only 3 percent, remain the least prioritised activities by companies. Similarly, initiatives such as mentorship programmes (6%) and additional paternity leave after childbirth (10%) also reflect low implementation. For example, only 10 percent of companies have post-birth paternity leave policies in place, highlighting their limited focus on inclusive parental support. These low adoption rates suggest that companies struggle to prioritise policies that address gender-specific needs, which could play a crucial role in the creation of an inclusive work environment. Furthermore, the low availability of breastfeeding rooms (7%) and the limited access to psychological support services (8%) reveal significant gaps in emotional and physical support for women employees.

- » **Moderate Adoption Rates (12–30%):** This category includes initiatives focused on inclusivity and equal opportunities. For instance, internship programmes for female students (13%) are being adopted, though not widely, indicating companies are beginning to invest in building a pipeline for female talent. Policies promoting equal pay (23%) and combating bullying (23%) are adopted to a moderate level, signalling progress in addressing workplace equity and safety. Additionally, gender equality training, implemented by 21 percent of companies, reflects the growing awareness, but highlights that broader educational initiatives are still needed. Meanwhile, special events for women (15%) and leadership development opportunities (8%) underscore a limited but uneven focus on empowerment initiatives. Importantly, measures supporting career development for women employees (26%) show signs of improvement, though further investments are required to foster long-term inclusivity.
- » **High Adoption Rates (33–55%):** In this category, more practical and foundational initiatives show stronger adoption. Flexible working arrangements are particularly noteworthy, with 55 percent of companies adopting such practices, highlighting efforts to facilitate work-life balance. Similarly, automation-focused machine improvements (53%) demonstrate a focus on creating more inclusive roles by reducing the physical barriers faced by women. Additionally, career development support for women employees (33%) indicates that some companies are prioritising long-term skill-building, although more targeted practices such as career advancement measures for women managers (28%) and legal support services for sexual violence and harassment cases (37%) show room for improvement. While progress has been made in operational and efficiency-focused areas, the relatively lower adoption of empowerment-focused measures indicates a need for more robust frameworks to address systemic gender-related challenges.
- » **Very High Adoption Rates (70–80%):** Basic infrastructure improvements dominate this category. For example, 80 percent of companies provide women's restrooms, and 78 percent offer personal lockers, as the most widely implemented practices. Additionally, women's changing rooms (70%) are commonly available, reflecting the recognition of companies of the importance of addressing foundational physical needs. The high prevalence of these measures, however, contrasts sharply with the lower adoption of transformative initiatives, such as the development and implementation of gender equality policies, the integration of gender perspectives into workplace policies – including HR policies – and the introduction of adjustments and regulations to address gender-related strategic and practical needs.



Table 27: Prevalence of practices aimed at Women's Empowerment

Categories	Practices	Practices are in place	Not currently in place but on company agenda
Positive Women-Friendly Practices	Menstrual leave	3%	6%
Positive Women-Friendly Practices	Additional applications beyond legal rights related to childcare facilities	3%	7%
Physical Conditions	Personal care services (e.g., hairdresser)	3%	7%
Positive Women-Friendly Practices	Pregnancy nutrition packages	3%	9%
Positive Women-Friendly Practices	Transportation support for daycare	3%	6%
Positive Women-Friendly Practices	Daycare support/services	4%	6%
Physical Conditions	Social, sports, and recreational areas	5%	7%
Career Development for Women	Mentorship programmes	6%	13%
Physical Conditions	Breastfeeding rooms	7%	6%
Gender Equality and Combating Discrimination	Psychological support services	8%	18%
Working Conditions	Remote working	8%	6%
Career Development for Women	Ensuring equal opportunities in leadership development programmes	8%	18%
Career Development for Women	Measures to ensure women's equal participation in learning processes on topics like digitalisation, green transition and other professional areas	9%	20%
Positive Women-Friendly Practices	Measures to facilitate adaptation to work during and after pregnancy	10%	13%
Positive Women-Friendly Practices	Additional leave and post-pregnancy support beyond legal rights during pregnancy and childbirth	10%	21%
Gender Equality and Combating Discrimination	Additional paternity leave beyond legal rights after childbirth	10%	14%
Career Development for Women	Encouraging language/practices in job advertisements to attract female applicants	12%	29%
Career Development for Women	Internship programmes for female students	13%	18%
Positive Women-Friendly Practices	Events on special occasions	15%	8%
Working Conditions	Private health insurance	17%	8%
Gender Equality and Combating Discrimination	Internal company mechanisms for equality, inclusiveness, and environmental topics	17%	24%
Representation	Signing a campaign, participating in an index, or implementing a standard on equality and anti-discrimination	18%	28%
Gender Equality and Combating Discrimination	Trainings on gender equality	21%	27%
Representation	Having a corporate policy on increasing women's employment and empowering women in the workplace	22%	22%
Gender Equality and Combating Discrimination	Policies and mechanisms for equal pay for equal work	23%	25%
Gender Equality and Combating Discrimination	Having a corporate policy on combating workplace bullying	23%	18%
Representation	Measures to support skill development for female employees	26%	27%
Representation	Measures to enhance the effectiveness of women in management	28%	23%
Gender Equality and Combating Discrimination	Having a corporate policy on issues such as violence and harassment against women	30%	18%
Representation	Measures to support the career development of female employees	33%	21%
Gender Equality and Combating Discrimination	Legal support services related to issues such as sexual violence and harassment	37%	17%
Gender Equality and Combating Discrimination	Measures to improve workplace language	38%	18%
Positive Women-Friendly Practices	Special shift arrangements for women	46%	21%

Improvements in Machinery and Equipment	Solutions to increase automation	53%	26%
Working Conditions	Flexible working	55%	8%
Physical Conditions	Women's locker rooms	70%	5%
Improvements in Machinery and Equipment	Use of special hoists to ease the carrying of heavy loads	71%	8%
Physical Conditions	Personal lockers	78%	9%
Physical Conditions	Women's restrooms	80%	3%

Overall women's empowerment score: 33/100

» Mature companies: 39

» Immature companies: 21

** Assuming a score of 100 for a company that uses all green tools (Scoring 3 if the practice in question is in place, and 1 if they are on the agenda).*

Source: WE Company Survey, PAL Analysis

The areas of intervention (implementation practices and categories) asked to the respondents in the WE company survey were developed based on literature reviews and in-depth interviews conducted within the scope of the project.

Triple transformation acting together: Scores & reality vs. self-assessments

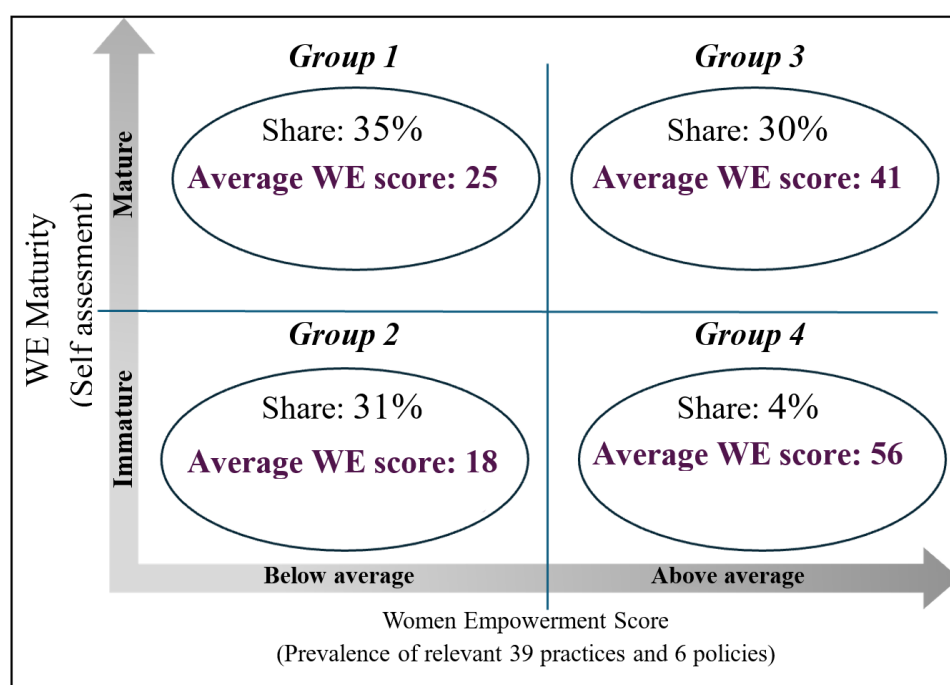
Overall, the respondent companies demonstrate varying degrees of success in the implementation of Women's Empowerment (WE) practices, however, a notable gap remains between perception and reality. Companies that consider themselves mature in digital transformation have an average digitalisation score of 51, whereas those that do not see themselves as mature score only 4. This demonstrates a strong correlation between the perceived maturity and scores in digital transformation. In the green transition, companies identifying themselves as mature scored of 53, compared to 21 for less mature companies. However, the gap is narrower in women empowerment, with mature companies scoring 39 and less mature companies scoring 21. An analysis of companies' self-assessments and actual performances (WE scores) together reveals four distinct groups of companies:

- » The first group, accounting for 35 percent of the total, requires the most intervention. These companies consider themselves mature in Women's Empowerment, but lag significantly behind in implementing practices that drive such a transformation, with average Women Empowerment scores of only 25 out of 100. The primary reasons for this gap may include lack of awareness, inability to identify needs and lack of vision.
- » The second group, containing 31 percent of companies, has the lowest average Women's Empowerment score at 18 out of 100. These companies are highly underdeveloped in terms of the implementation of Women Empowerment practices and policies, but are aware of their shortcomings, which suggests they are open to intervention and improvement. By adopting appropriate strategies, they have the potential to make significant progress in Women's Empowerment.
- » The third group, representing 30 percent of all companies, has an average score of 41 out of 100, above the overall average. These companies implement Women Empowerment practices above the baseline and consider themselves mature in this area. To further enhance their performance, however, they need to increase the impact of existing practices, address missing practices and ensure the sustainability of their initiatives. Such efforts would allow them to further improve their performance in supporting women's employment.

- » The fourth group is the most successful in implementing Women's Empowerment practices and policies, with an average score of 56 out of 100. However, despite this score, these companies do not perceive themselves as mature in Women's Empowerment– a discrepancy that likely stems from their recognition of the significant additional work required to achieve their goals. Supporting these companies with targeted activities to address self-identified gaps and positioning them as best practice examples could inspire others and make broader improvements (The Dunning-Kruger effect is apparent in this group, which suggests that more competent individuals or organisations tend to underestimate their abilities due to their greater awareness of the complexities and gaps in their knowledge.)
- » Among the surveyed companies, 32 percent made use of ERP (enterprise resource planning) solutions, with an average digitalisation score of 37 out of 100. Cloud computing (53%) and robotic technologies and automation (51%) were the most widely adopted, while 32 percent of the surveyed companies used ERP systems, 12 percent used artificial intelligence and 34 percent used CRM (customer relations management) solutions. The usage rates of these tools across Türkiye were recorded as 30 percent, 5.5 percent and 17 percent, respectively. Technologies such as energy monitoring software (24%), Internet of Things (IoT) and machine-to-machine communication (10%) have lower adoption rates, suggesting that these more advanced or niche solutions are less integrated into company operations. Assuming that a company that uses all the mentioned digital tools gains a score of 100, the average score among the survey participants was 37, while those that considered themselves mature in terms of their digitalisation achieved an average score of 51.

Tailored interventions for each group and the strategic alignment of self-assessments with actionable plans are critical if meaningful progress is to be achieved made in the empowerment of women across all groups.

Figure 58: Self-assessments and actual performances of companies related to Women's Empowerment



Source: Women's Empowerment Company Survey, PAL Analysis

The triple transformation approach, referring to the interconnected digital transformation, green transition and WE within companies, is supported by the survey findings. The significant relationship between the digital transformation, green transition and WE scores of companies is evident in the bubble chart below. Companies with high WE scores also tend to have high Digital Transformation scores, as indicated by the linear relationship between the x and y axes in the chart. Additionally, the bubbles in the top-right corner of the chart (representing companies with high digital transformation and WE scores) are larger, indicating that these companies also perform well in their green transition. Similarly, companies in the bottom-left corner exhibit relatively lower scores across all three areas, reflecting weaker overall performance in the triple transformation.

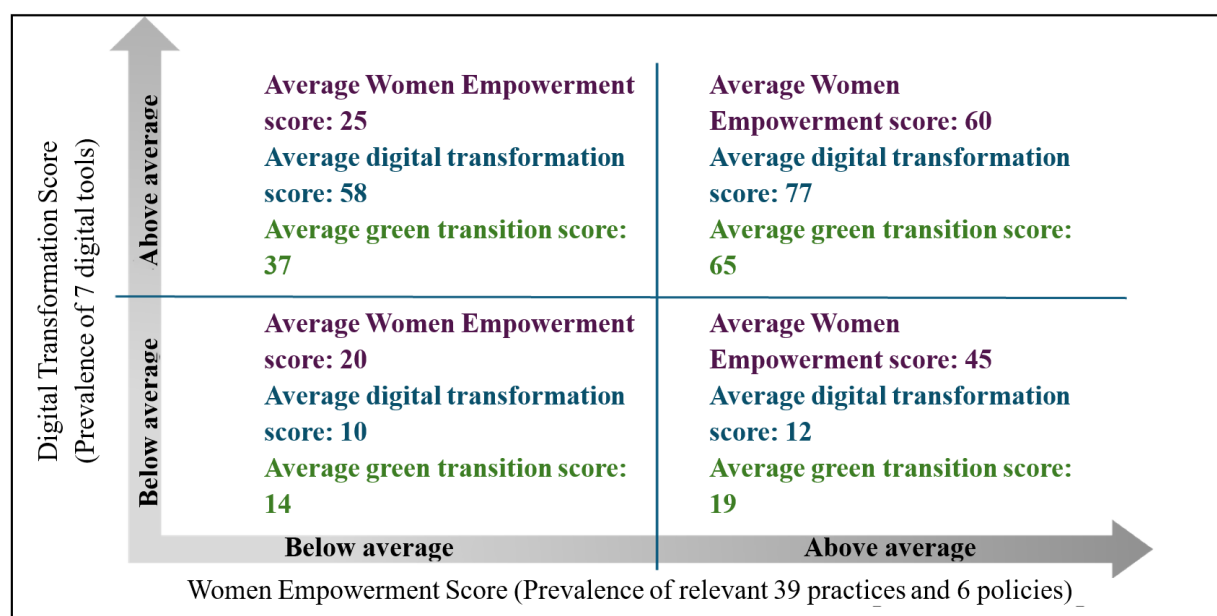
Figure 59: The tendency of digital transformation, green transition and women's empowerment scores to move together - I



Source: Women's Empowerment Company Survey, PAL Analysis

Companies with above-average digital transformation and WE scores perform better across all three areas of the triple transformation, including in their green transition. Companies with below-average digital transformation and WE scores have green Transformation scores of 14 out of 100, an average WE score of 20 and a digital transformation score of 10. In contrast, companies with above-average scores in both digital transformation and WE achieve significantly higher green transition scores of 65. That said, surpassing the average in either digital transformation or WE alone is not sufficient for the achievement of such high green transition scores. There is, nonetheless, a more linear relationship between the digital transformation and green transition scores. For instance, companies with above-average WE scores but below-average digital transformation scores have a green transition score of 19, while those with the reverse situation (above-average digital transformation scores but below-average WE scores) achieve a green transition score of 37.

Figure 60: Tendency of digital transformation, green transition and women's empowerment scores to move together - II



Source: Women's Empowerment Company Survey, PAL Analysis

3.2.3 Understanding Variations Across Companies: Emerging Patterns & Segments

Understanding the impact of different company characteristics on the variations in triple transformation scores is crucial for gaining deeper insights into this issue. To better understand the differences in the adoption of policies and tools related to the triple transformation in companies, as well as variations in their digital transformation, green transition and WE scores, the findings were analysed across specific company profiles created based on the following classifications:

- » Supplier status: Companies classified as regular suppliers to global companies, either domestic or international.
- » Foreign partnerships: Companies with full or partial foreign capital ownership.
- » Export intensity: Companies generating more than 30 percent of their revenue from international sales were classified as export-intensive, while those generating less than 10 percent were classified as low-exporting.
- » Openness to external markets: Export-intensive companies, companies with foreign partnerships and publicly traded companies were classified as open to external markets, while others were classified as not open.
- » Women employees: Companies in which 6 percent of the employees are female were classified as having women employees, while those having only male employees were classified as not having women employees.
- » White-collar intensity: Companies with more than half of their workforce in white-collar roles were classified as white-collar intensive, while those with less than 5 percent white-collar employees were classified as having low white-collar intensity.
- » Women manager intensity: Companies in which women hold more than half of the management roles were classified as high women manager intensity, while those with fewer than 10 percent women managers were classified as low.

- » Women board member intensity: Companies whose boards consist of more than 15 percent women were classified as high women board member intensity, while those having only men on their boards were classified as having none.
- » R&D intensity: Companies allocating more than 30 percent of their expenditures to R&D were classified as R&D-intensive, while those with no R&D expenditures were classified as non-R&D.
- » Human resources department: Companies with a dedicated human resources department were grouped separately from those without.
- » Location in organised industrial zones (OIZ): Companies located within OIZs were compared with those outside such zones.
- » Company Scale: Companies were categorised as small (10–49 employees), medium (50–249 employees) or large (250+ employees).
- » Triple transformation self-assessments: Companies that consider themselves mature in terms of their digital transformation, green transition and WE were compared who do not.

This classification allows a comprehensive overview of how different company profiles perform in the triple transformation, and provides targeted insights into their development. The table below provides detailed information on how different company characteristics impact WE, digital transformation and green transition scores.

Being part of a supply chain pushes companies to adopt policies and tools aligned with the triple transformation goals. Supplier companies outperform non-supplier companies across all dimensions, with WE scores of 35, digital transformation scores of 54 and green transition scores of 41, compared to the significantly lower scores of 31, 16 and 20, respectively, in non-supplier companies. Companies with foreign capital score higher in all three areas (54 in WE, 58 in digital transformation and 71 in green transition) than those without foreign capital (32, 36 and 30). Export-intensive companies lead significantly, with scores of 40, 60 and 68 across the three dimensions when compared to non-exporting companies, with respective scores of 31, 31 and 24. Similarly, companies classified as open to external markets score much higher (46 in WE, 55 in digital transformation, and 60 in green transition) than those that are not open to external markets (32, 36 and 31, respectively). These findings emphasise the role of global market exposure in driving transformation.

While leadership diversity is crucial, its effectiveness is maximised when share of total female employees is higher. Companies with women employees show perform better across all dimensions (39 in WE, 41 in digital transformation and 41 in green transition) than those without women employees (31, 16 and 19, respectively). Companies with higher proportions of women in leadership roles or on their boards generally perform better in WE and digital transformation, indicating that gender diversity positively influences these areas. For instance, companies with a high share of women on their boards score significantly higher in WE (36 vs. 21) and digital transformation (37 vs. 26) than those with no women on their boards. This impact, however, is less evident when it comes to the green transition, as companies with no female board members slightly outperformed those with women on their boards, with scores of 27 and 26, respectively. Similarly, while companies with no women managers score marginally higher in WE (32 vs. 30), their digital transformation (16 vs. 40) and green transition (21 vs. 28) performances are significantly lower.

Companies oriented toward innovation and those with high concentrations of personnel in value-added roles perform significantly higher in the triple transformation than those that are/have not. Companies with higher proportions of white-collar employees score significantly higher (39 in WE score, 56 in digital transformation Score, 42 in green transition score) than those with low white-collar intensity (17, 24 and 23), highlighting the importance of skilled labour in driving the triple transformation. Similarly, R&D-intensive



companies perform better in all areas (40 in WE, 41 in digital transformation and 48 in green transition) than non-R&D companies (29, 11 and 16), reflecting the critical role of innovation and technological investment in the attainment of transformation goals.

Companies with well-established corporate structures perform better in the triple transformation, as reflected in the higher scores of companies with an HR department and large-scale companies. Companies with human resources departments score considerably higher (35 in WE Score, 47 in digital transformation and 37 in green transition) than those without (27, 11 and 15), revealing that having a dedicated HR department supports the implementation of triple transformation practices, especially in WE. Large companies significantly outperform small- and medium-sized companies across all dimensions, with scores of 42 in WE, 58 in digital transformation and 65 in green transition, compared to small- (30, 27 and 24) and medium-sized (33, 40 and 27) companies. This indicates that larger companies have more resources and corporate capacities to implement transformation practices.

The industrial clustering effect likely facilitates knowledge sharing, collaboration and access to resources, thus enhancing triple transformation efforts. As a result, OIZ companies show stronger scores (35 in WE, 41 in digital transformation and 34 in green transition) than non-OIZ companies (27, 24 and 23).

In summary, the profile of a company significantly influences its performance in the triple transformation. External market engagement, organisational maturity and resource availability are key drivers of success.

- » **Consistent Leaders:** Large, export intensive companies with foreign capital consistently achieve the highest scores across all three dimensions, reflecting their broader exposure, resources and market incentives
- » **Significant Gaps:** Non-supplier companies, non-exporting companies, non-OIZ companies and companies without HR departments achieve significantly lower scores, indicating a lack of capacity or motivation to transform.
- » **Interconnected Transformations:** Digitally and green mature companies consistently perform better across all dimensions, demonstrating the synergistic nature of the triple transformation.

Table 28: Triple Transformation Scores of Various Company Groups

	Women's Empowerment Score	Digital Transformation Score	Green Transition Score
Supplier companies	35	54	41
Non-supplier companies	31	16	20
Foreign capital present	54	58	71
No foreign capital	32	36	30
Export-intensive	40	60	68
Non-exporting	31	31	24
Open to external markets	46	55	60
Not open to external markets	32	36	31
Companies with women employees	39	41	41
Companies without women employees	31	16	19
High proportion of white-collar employees	39	56	42
Low proportion of white-collar employees	17	24	23
High proportion of women managers	30	40	28
No women managers	32	16	21
High proportion of women on boards	36	37	26
No women on boards	21	26	27
R&D-intensive	40	41	48
Non-R&D	29	11	16
HR department present	35	47	37
No HR department	27	11	15
Organised industrial zone (OIZ) companies	35	41	34
Non-OIZ companies	27	24	23
Small companies	30	27	24
Medium companies	33	40	27
Large companies	42	58	65
Digitally mature	35	51	41
Not digitally mature	27	5	10
Green mature	40	47	53
Not green mature	29	32	21
WE mature	39	49	39
Not WE mature	21	15	16
General	33	37	31

Source: Women's Empowerment Company Survey, PAL Analysis





4 SYNTHESIS AND WOMEN'S EMPOWERMENT MODELS

4. SYNTHESIS AND WOMEN'S EMPOWERMENT MODELS

This section outlines the policy approaches to WE in Türkiye's manufacturing industry, beginning with a presentation of the key findings of the study, which guide the creation of a policy framework. Next, it summarises the policy recommendations developed based on research and stakeholder consultation. Finally, the section highlights, at the firm level, priority policy areas and intervention examples shaped by global standards and policy frameworks as well as pioneering practices of corporate companies and business organizations.

4.1. Towards the Triple Transformation

Despite the efforts to increase the participation of women in Türkiye's manufacturing sector, significant gender imbalances and structural challenges to the attainment of equity remain. The share of women in Türkiye's manufacturing sector increased by 10 percent from 1990 to 2022, reaching 27 percent. However, gender imbalances persist, with only one in three newly created jobs in the sector being filled by women. This disparity has ensured female unemployment has consistently surpassed that of men since 2010, and indicates the persistence of systemic challenges in equitable job creation.

Despite the fact that women constitute 44 percent of all vocational high school graduates and 51 percent of university graduates, their participation in the labour force is significantly lower than that of men. Only 28 percent of women who graduate from vocational high schools and 33 percent of engineering and IT graduates go on to join the workforce. When it comes to employment the gap increases. Women's ratio is only 22 percent among engineering and IT graduates who are employed, highlighting the substantial barriers faced by women in technical fields. This gap underscores the underutilisation of female talents, particularly in STEM-related professions.

Young people nearing graduation do not hold strong desires against working in the manufacturing sector, yet this perception often deteriorates after entering the workforce. While 90 percent of female recent graduates and senior students express an interest in working in the manufacturing sector, 56 percent of companies report a lack of female candidates as a significant barrier to progress in WE (survey data). This suggests that over time, as candidates gain more experience of the labour market and societal biases, they may be dissuaded from opportunities in the manufacturing sector. Informality and skill mismatches disproportionately affect women more than men, with 36 percent of women in informal employment compared to 24 percent of men. Such challenges exacerbate the existing inequalities, making it harder for women to secure stable, high-quality jobs.

Women represent 49 percent of the workforce in professional occupations, but only 18 percent of managerial occupations are held by women. This underrepresentation in leadership signifies that, despite utilizing their expertise, their influence on decision-making and organizational strategy remains limited.



The share of women in the workforce tends to rise with the technological level of companies. Women make up 16 percent of employees in low-medium technology companies, 19 percent in medium-high technology companies and 36 percent in high-technology companies. This trend demonstrates the potential for technology-driven industries to foster greater gender equity, and hence supports the digital and green transformation.

The findings of the present study reveal that the manufacturing sector is transforming in line with the triple transformation, although the awareness gaps persists. Companies excelling in their digital transformation and WE tend to achieve above-average green transition scores, indicating a synergetic relationship although a lack of awareness is still remains. Companies that self-asses themselves as mature in terms of their digital transformation also tend to achieve actual high digital transformation scores (51, compared to 4 for immature companies), and a similar pattern emerges related to the green transition, with mature companies scoring 53, exceeding the 21 score of those that are less mature. In contrast, the gap between perception and reality is somewhat different when it comes to WE. Companies that consider themselves mature in WE score 39 in practical implementation, while others score 21, highlighting a need for greater awareness and actionable strategies. While 35 percent of the respondent companies in the survey considered themselves mature in WE, their implementation of appropriate strategies fell below average, with an average score of 21 out of 100.

This analysis seamlessly extends into the triple transformation concept, which expands on the twin transformation of digitalisation and green sustainability by incorporating women's empowerment as a third fundamental pillar. This expanded framework is essential for fostering innovation, sustainability and equity across industries and societies. The results of this study show clearly how WE often complements the digital transformation and green transition by addressing systemic barriers, enhancing economic participation and promoting inclusive growth.

Women can be considered to play a driving role in both the digital transformation and green transition, a fact supported by extensive research and global best practices. Gender-diverse teams have been shown to foster innovation and to produce more creative and user-friendly solutions, as highlighted by McKinsey & Company's findings that diverse teams outperform less diverse companies in innovation and profitability (McKinsey, 2020). Addressing the digital gender gap is critical for the full participation of women in the digital economy, for their effective contributions to green transformation efforts. World Economic Forum studies emphasise that organisations with women in leadership positions are more likely to set ambitious sustainability goals and implement eco-friendly practices, in alignment with broader corporate social responsibility objectives (WEF, 2021). Moreover, women emerge as influential agents of change in their communities, and contribute to the promotion of sustainable behaviours while providing critical insights into the development of equitable climate solutions. These findings underscore the indispensable role of women in shaping a future that is both digitally innovative and environmentally sustainable, highlighting the need for policies and practices that actively support their participation and leadership in these transformative areas.

The interplay among digitalisation, sustainability and women's empowerment contributes to a virtuous cycle of progress. Digital tools enhance the contributions of women to sustainability by facilitating remote work, green technology training and entrepreneurial opportunities. In turn, empowered women drive the adoption of digital and sustainable practices, fostering inclusive economic growth. The incorporation of WE into the dual digital transformation and green transition framework can be considered an equitable, comprehensive and high-impact approach to meeting the interconnected challenges of innovation, sustainability and inclusivity.

4.2. Policy Recommendations

The policy recommendations presented in this section have been developed based on the findings of a literature review, in-depth interviews and stakeholder consultations during several focus group meetings. The recommendations aim to strengthen the economic empowerment of women, to advance gender equality in industry and the private sector, and to contribute to the creation of a more inclusive business environment. In this context, best practices from around the world have been taken as inspiration, while tailoring the recommendations to align with Türkiye's economic and cultural dynamics. The recommendations were discussed and refined during focus-group meetings involving such key stakeholders as public and private sector representatives, NGOs, and academicians and experts working in the areas of manufacturing and WE.

The proposed policies are structured around such key themes as awareness and capacity building, skills development, performance monitoring, financial literacy, entrepreneurship support, improvement of social services and advocacy. The overall objective of the proposed policy set is to support the empowerment of women by assigning key roles not only to the public sector, but also the private sector and other non-governmental actors. As such, the policy framework encompasses all economic stakeholders, and requires shared responsibility among public institutions, the private sector, civil society organisations and academia. The public sector can lead the way in this area by creating the right incentives, sourcing such so-called missing public inputs as social services, and ensuring the necessary regulations are in place to ensure WE in manufacturing. Furthermore, by fostering gender diversity in employment, the private sector can build a more equitable labour force, with the associated benefits to their innovation, productivity and long-term economic resilience. In this regard, aligning corporate policies and practices with national and international standards is a critical step towards the strengthening of women's employment and representation in Türkiye's labour market.

1. Capacity Building and Awareness Raising in the Private Sector

The attainment of gender equality in the private sector in Türkiye will be possible through increased awareness, and the acknowledgement and internalisation of the issue across Türkiye. Changing the ingrained perceptions of women's employment in the manufacturing sector is among the priority goals. Normalising approaches that address the diverse needs and expectations of women will pave the way for appropriate policies in this area. Consequently, companies willing to implement women-focused policies will be able to do so more easily by overcoming internal challenges and successfully ratifying practices, thus facilitating widespread action towards the issue. To this end, the recommended areas for capacity building and awareness raising in the private sector are as follows:

- » **Development/expansion of gender equality training programmes:** Awareness-raising activities will accelerate the cultural transformation of workplaces. Trainings targeting managers and HR professionals can increase awareness of the benefits of gender-equal recruitment, promotion and wage policies, while general gender equality trainings can increase public consciousness.

Furthermore, trainings designed specifically for women to inform them of their right in the workplace will expand their knowledge and contribute to the strengthening of equality in the workplace.

- » **Raising awareness and promoting workplace policies related to gender equality, inclusion and diversity, pregnancy, reproductive health, the prevention of harassment and improvements to physical conditions to better accommodate women:** Defining and prioritising activities related to gender equality is a key step in ensuring WE in the manufacturing sector. The establishment of clear policies related to reproductive health, and harassment prevention is crucial for WE in the workforce. Expanding practices such as maternity leave, parental leave, breastfeeding leave, flexible work models and return-to-work programmes will help women continue their careers without interruption. Similarly, implementing effective complaint mechanisms and zero-tolerance policies related to harassment will foster an inclusive workplace environment. The provision of guidance to companies on the definition of gender equality and the priority steps to be taken in this regard will incentivise them to establish dedicated changing rooms, hygienic restrooms, secure personal lockers and private breastfeeding spaces. As this study also reveals, there are significant gaps in all these areas that need to be addressed in order to create a workplace environment that is respectful of, inclusive of, and supportive of women's interests and needs.
- » **Strengthening perceptions in favour of women's employment in the manufacturing sector:** Changing social perceptions about the manufacturing industry is crucial if women are to be encouraged to look for work in the sector. Accordingly, campaigns showcasing successful female employees and managers in manufacturing companies should be launched to reinforce the message that women can excel in technical fields and in the manufacturing sector.

2. Supporting Women's Skill Development in the Manufacturing Sector

Strengthening the presence of women in manufacturing-related educational fields and enhancing their technical and leadership competencies will not only expand their employment opportunities, but also contribute to the achievement of gender equity in the sector. Enhancing the quality of education provided by higher education institutions, vocational high schools and training courses and making them more accessible to women is essential, for which three recommended actions areas are put forward:

- » **Expanding training programmes to enhance technical and leadership skills:** Increasing access to education programmes focused on technical skill development will facilitate the career planning of women in the manufacturing sector. Expanding state-supported training opportunities, private sector collaborations and vocational school programmes will contribute significantly to the employment of women in manufacturing.
- » **Promoting initiatives encouraging women to pursue careers in engineering and IT:** Encouraging women to study in such technical fields as engineering and information technologies is vital for the reduction of the gender imbalance that plagues the sector. Early exposure to STEM (Science, Technology, Engineering and Mathematics) education, increasing scholarships and highlighting successful female graduates as role models will accelerate this transformation. Additionally, incentivising the hiring of women in technical fields may enhance female participation in the workforce.

- » **Integrating manufacturing companies into the education ecosystem:** The active involvement of manufacturing companies in the education ecosystem will align training programmes with the needs of industry. This process has already begun in various Organised Industrial Zones and vocational school established under the CSR programmes of large companies. This process will need to be further strengthened for the specific benefit of WE in manufacturing. As such, university-industry collaborations, internship programmes and vocational training centres should be supported to facilitate the transition of graduates into the labour market. By supporting women-focused vocational training programmes, manufacturing companies will expand their talent pools and promote gender-balanced employment, while fostering a stronger commitment to industry among graduates.

3. Strengthening Social Services

- » Expanding and improving the scope of social services will not only support the participation of women in the workforce, but also help them achieve their career goals. The urbanisation and industrialisation process in Türkiye has led to household and caregiving responsibilities falling primarily on women, limiting their economic participation. Developing policies to ensure the fair distribution of care responsibilities and strengthening social services will contribute to sustainable employment among women. The three proposed priority action areas in this realm comprise are as follows:
- » **Ensuring general access to quality healthcare, childcare and transportation services:** Expanding affordable childcare and caregiving services, strengthening the delivery of healthcare support for women, and ensuring safe transportation options are fundamental steps that will support sustainable female employment.
- » **Facilitating industrial workers' access to social services:** Women working in the industrial sector face challenges in accessing childcare, education and healthcare services, which negatively impacts their career growth. Strengthening and improving the quality of these services in industrial zones will enhance the sector's ability to attract and retain talent.
- » **Enhancing social services based on regional disparities and specific needs:** Social service needs and preferences vary by region. To increase female employment in industrial zones, localised social service models may be developed based on regional requirements, for which periodic needs analyses should be conducted. Planning and programming can thus be initiated on the basis of the data gathered from these analyses, thus responding appropriately to the needs and interests of the employees.

4. Prioritising Women's Health and Well-being

To ensure that women can work in a healthy, safe and productive environment, healthcare services and workplace conditions should be improved. Increased access to hygiene, nutrition and psychosocial support services for women will positively impact their well-being and productivity. Expanding women's health awareness programmes, facilitating access to healthcare and strengthening post-maternity return-to-work mechanisms should be given the highest priority. This report proposes two major action items aimed at supporting women's health and well-being in manufacturing:



- » **Improving physical workplace conditions by ensuring access to hygiene products, clean facilities and quality meals, as well as the dissemination of best practices:** Attracting women to manufacturing and ensuring their retention depends largely on the maintenance of appropriate physical working conditions. Providing designated rest areas, personal lockers, breastfeeding rooms, hygienic restrooms, personal care services, and social, sports and recreational areas will improve workplace inclusivity and support the health and productivity of women, particularly those with physically demanding jobs.
- » **Strengthening return-to-work mechanisms for pregnancy and post-maternity periods:** Supporting women during pregnancy and their return to work after childbirth is vital for maintenance of workforce continuity. Expanding flexible working arrangements, remote work options, breastfeeding rooms and childcare support, as well as the provision of return-to-work training, should be prioritised.

5. Enhancing Women's Financial Literacy

Increasing women's financial literacy will help them achieve economic independence and manage their income. Financially knowledgeable women can make informed decisions related to both their careers and savings, investments and budget management, strengthening their long-term economic well-being.

- » **Increasing women's financial independence through basic education:** Financial literacy programmes on banking systems, credit management, insurance services and investment tools as a part of the education system will empower women financially and strengthen their financial independence.
- » **Providing women with budget management and personal savings training:** Women should receive training in budget management and personal savings, allowing them to effectively manage their income and secure their future. These training programmes can cover such topics as balancing income and expenses, debt management, savings strategies and the use of investment tools.

6. Promoting Women's Entrepreneurship in the Manufacturing Sector

Supporting female entrepreneurship will enable women to take on leadership roles as employers and business owners in manufacturing. Having more women in leadership positions can facilitate the WE process in the sector. In this regard, enhancing access to resources, expanding professional networks and improving market access should be prioritised, supported by the two following priority action areas:

- » **Ensuring women entrepreneurs have access to resources and professional networks:** Women entrepreneurs need increased access to financial support mechanisms (public, international or private sector funding), venture capital, credit support, mentorship programmes and financial consulting services. To ensure that women entrepreneurs are more visible in the market, women entrepreneurship networks and collaborations may be strengthened.
- » **Supporting trade fairs and market linkages:** Market access programmes and export incentives tailored to women entrepreneurs will enhance their competitive advantage. Facilitating

participation in trade fairs and sectoral events and promoting policies prioritising women entrepreneurs in supply chains will further strengthen female-led businesses in manufacturing.

7. Establishing Complaint Mechanisms

Women should have access to effective complaint mechanisms through which they can safely report workplace harassment, discrimination or violations of rights. Establishing such mechanisms will enhance the accountability of employers and companies while contributing to a more inclusive work environment.

- » **Development of safe and confidential reporting systems:** Independent structures within workplaces should establish complaint units or hotlines as key tools for addressing the challenges faced by women. Companies should also conduct regular awareness-raising campaigns to inform employees about these mechanisms. Such systems may also serve as essential monitoring and evaluation tools.
- » **Ensuring access to legal counselling and support centres:** Increasing access to free or low-cost legal counselling services will support women in taking action in the event of violations of rights in the workplace, and may serve as a critical resource for affected employees.

8. Establishing Women's Committees in Industrial Zones

Efforts to develop policies that address the needs of women in industrial zones and ensure gender equality in companies may benefit from the formation of women's committees. Such committees can serve as platforms for dialogue and advocacy, addressing the challenges faced by female employees and entrepreneurs, while also supporting initiatives that promote the employment of women in industry. The representation of women at different levels will enable these committees to address the needs of both blue- and white-collar female employees in industrial zones. To this end, the following three priority action areas are recommended:

- » **The creation of platforms that address female workers' needs:** Independent platforms should be established through which female employees can voice their concerns, demands and suggestions. Such platforms will allow employees to share their perspectives of working conditions, wage equality and career opportunities, while facilitating direct communication with employers, workers' unions, NGOs and government institutions.
- » **Supporting diversity and gender mainstreaming initiatives:** Women's committees may arrange training and awareness activities related to gender equality in the workplace, while also contributing to the policy development processes. Gender mainstreaming approaches will facilitate the internalisation of the unique needs of women and men and the improvement of conditions for female employees. Projects that encourage the greater participation of women in decision-making mechanisms should be developed and monitored to enhance diversity.
- » **Developing mentorship programmes for women in education and employment:** Mentorship programmes should be established to encourage women to pursue careers in industrial professions, support their career development, facilitate their adaptation to working life and



enhance their leadership skills. Programmes pairing female employees or students with experienced professionals will help strengthen their professional skills development and expand their networks.

9. Performance Management System for Industrial Zones

Industrial zones can be considered the most appropriate spatial interfaces for the design and implementation of interventions in support of WE in the private sector. OIZs can play a leading role in the dissemination of best practices among companies of all sizes, from sectoral leaders to SMEs, while incentivising companies, supporting the monitoring and evaluation of interventions, and enhancing service delivery efficiency. Establishing interfaces within industrial zones, defining appropriate criteria, developing certification systems at both industrial zone and company levels, and standardising the provision of services through these interfaces will ensure the widespread implementation of interventions. Similar to the Green OIZ certification system developed in collaboration with the Ministry of Industry and Technology and the Türkiye Standards Institute, a performance-based system can encourage OIZs to take critical steps toward WE. The following four priority areas can be suggested in this regard:

- » **Creation of interfaces for the transfer of corporate/big company best practices to SMEs:** This proposed intervention aims to address the structural barriers to WE in Türkiye's manufacturing sector. Interventions at the industrial zone level can be carried out within Organised Industrial Zones (OIZs), given the significant role they play in Türkiye's manufacturing sector and the potential they offer to comply with policies aimed at promoting gender equality and increasing economic opportunities for women. Of the 402 OIZs in Türkiye (up from 192 in 2002), 280 are currently operational, and host approximately 67,000 enterprises that are responsible for around 45 percent of the country's industrial production. OIZs provide employment to 2.5 million people, representing half of the total industrial employment. OIZs can thus be considered crucial platforms for the implementation of such initiatives as training programmes, childcare service provision and public transport initiatives, addressing the challenges often faced by women in the workplace. The strategic role of OIZs can thus be leveraged to create more inclusive and supportive working environments, particularly within SMEs in the manufacturing sector. It is crucial, however, to include industrial chambers, associations, public stakeholders and other key actors in any developed interfaces, alongside OIZ administrative bodies.
- » **Developing metrics that support the participation of women:** To increase and sustain female employment in the industrial sector, measurable indicators that support inclusive and gender responsive workplaces and the participation of women must be defined, education and capacity-building programmes should be developed, and physical and temporal working conditions should be improved. The developed performance monitoring and management system should encourage the professional development of women, expand gender equality training, and support improvements that ensure safe and gender responsive working conditions. These metrics should be monitored and evaluated at both the interface and company levels, and should aim to promote education and capacity development, ensure compliance with legal regulations and international standards, encourage the widespread use of ergonomic equipment, support automation, enhance social and fringe benefits and internalise gender equality.

- » **Developing a certification system and ensuring compliance with standards:** A certification system should be established based on defined metrics to support the achievement of women's empowerment goals. Such a system can provide concrete insights into how the services provided in industrial zones can be improved based on evaluations of diversity and the specific needs of female employees. Similar to the recently introduced green industrial zone certification model, an application may be developed specifically for high-performing industrial zones in the field of WE.
 - » Based on the Green OIZ certification programme, the certification model should assess women's employment rates in industrial zones, career development opportunities, inclusive workplaces, workplace safety, equal opportunities and access to supportive social services. High-performing industrial zones should be incentivised accordingly. OIZs/industrial zones offering appropriate healthcare, childcare and education services should be granted specific benefits.
 - » Independent evaluation mechanisms should be integrated into the certification system. A gender-equality-focused audit and monitoring system should be established in industrial zones for the regular assessment of the compliance of the workplace with the established standards. Participation in international monitoring initiatives such as the ILO/IFC Better Work Initiative, should be encouraged to strengthen the competitive advantage of industrial zones, and internal audit committees should be formed to ensure the effective implementation of policies aimed at protecting women's rights in the workplace.
 - » Effective complaint mechanisms should be established at the industrial zone level through which female employees can easily and safely report violations of their rights. Telephone hotlines, advisory centres and online complaint platforms should be created to facilitate reporting, and the complaint mechanisms should be linked to legal support centres where female employees can take action to defend their rights.
- » **Improving healthcare, childcare and education services in industrial zones:** Strengthening healthcare, childcare and education services is crucial for WE in industrial zones. Interfaces of this kind can provide direct access to the available services in these areas, thus enhancing the quality of services and offering cost advantages to companies. Such measures to provide care services and ensure the equal distribution of care work among women and men within the household should be encouraged, and should address both women and men. Additionally, outsourcing these services to professionals may also be a strong option to ensure service quality and welfare of the service recipients.
 - » Childcare support/services: Onsite or subsidised childcare facilities allow women to balance their work and family responsibilities, and thus reduce stress and absenteeism.
 - » Transportation support for childcare centres: Organising transport to and from childcare centres ensures accessibility, especially for working parents without private vehicles.
 - » Social, sporting and recreational spaces: Providing dedicated areas for socialisation and recreation can improve the work-life balance and foster a sense of community among employees.
 - » Personal care services (e.g., hairdressers): Offering affordable and convenient personal care services onsite can save employees time and enhance their sense of well-being at work.



- » Psychological support services: Access to counselling and mental health services can help employees navigate personal and professional challenges more effectively.

10. Public-Private Sector Dialogue and Policy Advocacy

Establishing a strong mechanism for cooperation and dialogue among the public sector, private sector, academia and civil society organisations is essential for the implementation and sustainability of policies. In this process, sharing best practices, ensuring stakeholder participation in policy development, and moving the issue of female employment beyond a corporate social responsibility framework to a public and institutional policy domain are of critical importance:

- » **Monitoring and sharing best practices:** Disseminating successful practices that promote female employment, as well as gender responsive and inclusive practices, will increase awareness across the sector and encourage the adoption of effective solutions. The best models for inclusive and gender-responsive workplaces and the promotion of women's employment in both the private sector and public institutions should be monitored, documented and widely shared. International and national best practices should be analysed, strategies tailored to Türkiye should be developed and their applicability across different sectors should be enhanced. The effectiveness of incentive mechanisms for women's employment, especially in industrial zones, should be measured, and the most successful approaches should be promoted.
- » **Creating a dialogue and advocacy platform that brings together the public sector, NGOs, academia and key stakeholders:** A multi-stakeholder dialogue mechanism should to support the development and adoption of long-term and inclusive policies related to gender equality. Regular meetings and workshops should be held among government institutions, the private sector, academia and civil society organisations to ensure the participation of stakeholders in policy processes. Joint strategies should be formulated to increase women's employment and workforce participation, and to promote the creation of inclusive and gender responsive work environments, leading to the development of practical solutions across various industries. Public-private partnerships should be established to support the creation of appropriate incentive models for female employment in industrial zones, ensuring the active participation of the business sector in this process.
- » **Transforming gender equality by moving one step further from corporate social responsibility to a public policy priority embraced by all stakeholders:** Incentives promoting the employment and empowerment of women in the manufacturing sector and gender equality policies should become an integral part of national development policies, supported by long-term strategies. The private sector should recognise gender equality policies not merely as an ethical obligation but as a strategic opportunity for economic growth and competitiveness. Policies encouraging the economic participation of women should be institutionalised through legal regulations and incentive mechanisms to ensure sustainability.

4.3. Priority Policy Areas and Interventions at a Company Level

Practices focusing on the empowerment of women in businesses are being shaped by the work of international organisations and the commitments of governments and the private sector. Global companies that embrace such universal commitments as the Sustainable Development Goals (SDGs) take action to mobilise their affiliates and suppliers in their countries of operation, and several sets of guiding principles, standards and best practices contributing to WE have flourished. The efforts of private sector associations and non-profit organisations have contributed to the dissemination of best practices, in some cases accompanied and/or complemented by national policies. These frameworks serve as guidelines or benchmarks for organisations seeking to improve gender equality within their operations.

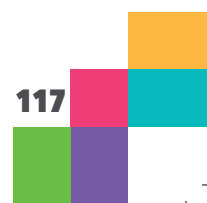
Universal practices that support women's empowerment are gradually taking hold in Türkiye's business landscape, although their adoption varies significantly across companies of different sizes. Universal practices in WE often make their way into Türkiye through the domestic operations of global companies and their main business partners, although the company-level compliance with global standards and the adoption of best practices tend to diminish as the scale of businesses decreases from large to small. This is due primarily to the significant organisational resources required to initiate, supervise, monitor or evaluate WE initiatives, such as the establishment of dedicated human resources units or the creation of fiscal space for infrastructure investments that empower women.

Enhanced policy frameworks and interfaces that facilitate collective action and provide solutions for scale-related challenges are critical for empowering women. These can play a crucial role in the dissemination of best practices among medium- and small-scale companies. The following are priority policy areas and recommended company-level interventions derived from global policy frameworks and standards. Without the active engagement and individual interventions of companies, policy recommendations alone may fall short of achieving meaningful impact.

1. Leadership Commitment to Gender Equality

Senior management must demonstrate a clear and strong commitment if their company is to successfully contribute to gender equality and increase female employment. Setting clear targets for gender equality and participating in national or international networks are critical steps, both for driving transformation within the company and for taking a leading role in the sector. Such commitments should go beyond verbal statements, being rather integrated into corporate strategies and business processes, and aligned with national or international agreements.

- » **Setting Clear Targets for Gender Equality:** Measurable goals should be established for the employment rate of women, the proportion of women in leadership positions, the access of women to promotion, and equal pay for equal work, and progress towards these goals should be regularly monitored. Female representation in leadership and management positions should be increased, and programmes supporting the access of women to senior roles should be implemented. Employee satisfaction surveys and transparent reporting processes should be used to track advancements in gender equality, and the collected data should be shared with the public.



- » **Strategies and Planning for Gender Equality and Women's Empowerment:** All company policies, including, but not limited to human resource policies, and strategic documents should be reviewed to ensure mainstream gender equality and to avoid any discriminatory approaches. Dedicated strategies and targets for gender equality and women's empowerment should be set. The necessary budgets should be set during planning and programming, and a gender responsive language should be used in internal and external communications.
- » **Participation in National or International Networks:** It is crucial for companies to engage in global and national initiatives that support gender equality and WE, as this will facilitate the adoption of innovative policies, the widespread implementation of best practices, and the standardisation of monitoring and evaluation processes, while also strengthening the company's image and reputation. Knowledge and experience sharing should be encouraged through sectoral platforms and collaborations with civil society organisations, and best practices should be incorporated into company policies. Furthermore, participation in national and international certification frameworks aimed at enhancing diversity and inclusion should be pursued to formally reinforce the company's commitment to gender equality. Such frameworks include reporting practices as well as compliance mechanisms to universal principles and Standards. Some examples are United Nations Women's Empowerment Principles, the Global Reporting Initiative Standards, Economic Dividends for Gender Equality Certification (EDGE), Great Place to Work Scheme, Gender Equality Seal (UNDP), Gender Equality Index etc.

2. Performance Monitoring and Reporting for Gender Equality

To ensure the translation of the company's diversity and gender equality goals into tangible results, measurable performance indicators must be established, regularly monitored and transparently reported.

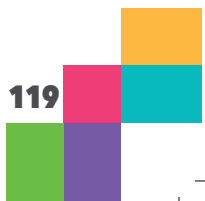
- » **Adopting Universal Standards for Measuring and Reporting Performance:** Implementing data collection and analysis processes that are aligned with global standards will facilitate the effectiveness of gender equality policies within the company. Compliance with international frameworks such as the Global Reporting Initiative (GRI), the World Economic Forum's Gender Equality Index, ILO's Gender Equality Indicators, UNDP's Gender Equality Seal indicators and SDG8 – "Decent Work for all" is essential for alignment with global norms. Standardised gender-based data collection processes should be established within the company ensuring that recruitment, promotions, salaries and turnover rates are regularly analysed.
- » **Regularly Reporting Metrics on Leadership Gender Equality, Pay Equity and Career Opportunities:** The representation of women and men in leadership positions should be systematically measured and analysed. Corporate performance reports focused on gender equality should be developed in line with universal standards and shared with the management bodies and stakeholders to foster accountability and continuous improvement.
- » **Measuring the Contribution of Women within the Workforce:** Key indicators assessing the contributions of women should be defined and regularly reported. Recruitment, promotion and training programme participation data should be monitored with a gender-sensitive approach, as this will support decision-making related to wage policies and strategies to increase female employment based on concrete metrics.

- » **Leveraging financial tools:** Firms' participation in indices or compliance frameworks established to empower women would promote responsible investment and help enhance the market value of companies that support gender equality. On the other hand, just as the BIST sustainability index, developing another index for women-friendly companies traded on the stock exchange would be one of the steps that could be taken in this direction.

3. Developing an Inclusive Corporate Culture

Companies must create an inclusive, supportive and fair working environment to ensure women have equal access to opportunities in the workplace and can thrive professionally. A corporate culture that promotes gender equality across all processes – from recruitment to career development, and from wage policies to working conditions – not only enhances employee engagement and corporate reputation, but also contributes to long-term sustainable growth.

- » **Implementing Mentorship Programmes for Women:** Mentorship programmes should be established with the participation of successful executives to support the career development of women and to provide them with professional guidance. Women's leadership networks should be created within companies to encourage the sharing of knowledge and experiences among female employees. As a good example, Kordsa implements a mentorship programme that brings together disadvantaged young women with female company managers.
- » **Providing Professional Development and Leadership Training for Women:** Leadership, management and professional development programmes should be designed specifically for female employees to support their career development within the company. Additionally, access to training programmes that enhance women's technical skills should be increased, and their specialisation in areas such as digitalisation, green transition engineering and production processes should be encouraged. Furthermore, a talent pool of women should be established to aid the identification of candidates for managerial positions. As an example of a good practice, Tüpraş has developed a back-up mechanism in which at least one female candidate is made available for managerial positions.
- » **Strengthening Social Benefits Such as Maternity Leave and Return-to-Work Support:** Maternity leave, parental leave and return-to-work processes should be restructured to better support female employees. Flexible working arrangements for post-maternity work should also be considered.
- » **Improving Physical Working Conditions and Addressing Needs:** Safe and hygienic working environments should be created to meet the specific needs of women employees. Essential facilities such as clean restrooms, changing rooms, lockers and nursing rooms should be prioritised. Ergonomic equipment and automated solutions should be widely adopted for physically demanding roles. Additionally, access to transportation and childcare support should be considered fundamental improvements.
- » **Supporting Work-Life Balance:** Flexible working arrangements, such as telecommuting, part-time work, flexible hours and shift arrangements should be made available to help employees balance their working and personal lives. Providing parental leave policies that support both mothers and fathers promotes gender equality in caregiving roles. As a good practice, Mercedes Benz offers mothers up to 1 year of unpaid leave and arranges part-time working opportunities for women until their children reach the age of 6 years.



- » **Strategies and Planning for Gender Equality and Women's Empowerment:** All company policies, including, but not limited to human resource policies, and strategic documents should be reviewed to ensure mainstream gender equality and to avoid any discriminatory approaches. Dedicated strategies and targets for gender equality and women's empowerment should be set. The necessary budgets should be set during planning and programming, and a gender responsive language should be used in internal and external communications.
- » **Strengthening Equal Pay for Equal Work Policies:** Ensure that women are paid equally for work of equal value, and carry out pay audits to identify and address any gender pay gaps. Wage disparities between male and female employees should be regularly analysed and eliminated where necessary. Transparent salary policies should be implemented to ensure fair, performance-based compensation and job security.
- » **Zero Tolerance Policy for Harassment and Discrimination:** A strict zero-tolerance policy against workplace harassment and discrimination should be adopted and communicated to employees. Secure complaint mechanisms should be established to allow employees to report issues safely and confidentially.⁵⁹
- » **Prioritising Women's Empowerment in Supplier Selection:** Companies should adopt procurement policies that prioritise suppliers certified for gender equality and WE programmes. Supplier selection processes should encourage businesses that are mindful of female labour. Additionally, sourcing from women entrepreneurs and female-led businesses should be considered in procurement strategies.
- » **Preventing Informal Employment:** Strict monitoring should be implemented to prevent employees from working without social security, ensuring that all workers are employed on a formal basis. Policies to prevent insecure working conditions for female employees should be adopted, including those employed by subcontractors and outsourced companies.

4. Public Communication and Advocacy Activities

Companies should engage in awareness-raising campaigns focused on women's employment, pay equality and working conditions to contribute to public dialogue and advocacy efforts. Such initiatives could be arranged in partnership with non-profit organisations, industrial initiatives and public campaigns to raise awareness and drive change in society at large. Previous examples of such initiatives include the Women on Board Association, which advocates for increased representation of women on company boards across Türkiye through an 18-month mentorship programme for emerging women leaders. Second, the Women's Hand in Industry Project is an initiative of the TOBB Women Entrepreneurs Board's aimed at increasing the presence and participation of women in the industrial sector, and particularly in traditionally male-dominated fields. Finally, the Turkish Women's International Network runs a digital mentorship programme in partnership with private sector companies.

⁵⁹ ILO Convention No. 190 (C190) is a leading instrument addressing the issues of violence and harassment in the workplace. Adopted in 2019, it emphasizes the responsibility of employers to create a safe working environment, establish robust prevention measures and implement confidential complaint mechanisms.

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SURVEYS

UNDP (2024a): *Developing Women Empowerment Models in Manufacturing Industry Project Manufacturing Firms Survey (2024)*

UNDP (2024b): *Developing Women Empowerment Models in Manufacturing Industry Project Early-Career STEM Talent Survey*

DATABASES

- » Higher Education Council (YÖK) Statistics
- » ILO Statistics
- » Kariyer.net, İş Hayatında Eşitsizliğin İstatistikleri
- » Ministry of National Education Statistics
- » Supreme Organisation of Organised Industrial Zones (OSBÜK) Statistics
- » Social Security Institute Statistics
- » Turkish Statistical Institute
- » UNESCO Statistics
- » ÜNİ-VERİ, Presidential Human Resources Office
- » World Bank World Development Indicators



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