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Factors affecting women's labour force participation: A comparison of factor analysis and regression models

Asude Ozturk [a], Fusun Yalcin [b]

[a] *Graduate Program of Mathematics, Graduate School of Natural and Applied Sciences, Akdeniz University, TR-07058 Antalya, Türkiye*
[b] *Department of Mathematics, Faculty of Science, Akdeniz University, TR-07058 Antalya, Türkiye*

Abstract

The employment of women in the labour force is of significance in several domains, most notably in social and economic spheres. The present study aims to analyse the importance of women's labour force participation and related social attitudes with statistical methods. The survey data obtained from 402 respondents, who were selected by random sampling in Antalya province, were analysed using logit and probit models. The objective of this analysis was to investigate the level of support for women's participation in business life, as well as the factors affecting this participation. Following a thorough examination of the available data, it was determined that the probit model provides a superior fit to the data set when compared with the logit model. Furthermore, the gender variable was identified as a statistically significant factor in supporting women's participation in business life. Following the implementation of the factor analysis, the attitudes of women towards working life were subjected to further analysis, which resulted in the identification of three overarching factors. The following themes are to be explored in this study: firstly, attitudes towards women's working life; secondly, the perception of equality and discrimination against women in working life; and thirdly, the protective role of working life. Furthermore, it was determined that female participants were more inclined to concur with the statement "I think that women should be given a place in working life" than their male counterparts. The objective of this study is to furnish policy makers and employers with a scientific foundation upon which to support women's participation in the labour force and to overcome the obstacles that impede this participation.

Keywords: Woman, logistic regression, probit regression, factor analysis

2020 MSC: 62Q05, 62P25, 62J12, 62H25

1. Introduction

Women's participation in the workforce contributes significantly to the advancement of society as well as supporting their individual development. Working women strengthen their social status by interacting more with their social circles; at the same time, they gain economic independence through the income they earn. Economic independence enables women to participate more effectively in decision-making processes regarding their lives, which in turn lays the groundwork for increased self-confidence (*cf.* [5, 7, 14]).

Women's participation in the workforce increases their productivity and consumption capacity, thereby contributing to the country's economic development and poverty reduction. Considering the multifaceted benefits it provides

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Email addresses: asude.oztrk.00@gmail.com (Asude Ozturk), fusunyalcin@akdeniz.edu.tr (Fusun Yalcin)

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⋆*Corresponding Author:* Fusun Yalcin

at the individual, social, and economic levels, women's active participation in the workforce is of critical importance (*cf.* [5]).

The demographic and economic transformations that occurred after World War II significantly impacted women's participation in the workforce. The decline in the male population due to the war and the need to maintain production activities paved the way for women to take on greater roles in the workplace (*cf.* [10]). From this point onward, women's entry into the workforce not only contributed to economic growth but also encouraged changes in social roles, enabling women to play an active role in decision-making processes and become more visible in public life.

Iceland, Norway, Finland, and Sweden, located among the Scandinavian countries, have historically taken pioneering steps toward ensuring women have equal rights with men and have implemented comprehensive legal and institutional regulations in this area (*cf.* [28]). These policies, based on gender equality, have been effective not only in their own countries but also globally, serving as an example for many countries in developing practices aimed at increasing women's participation in the workforce (*cf.* [3, 6, 30]).

While there are various examples and approaches worldwide regarding women's participation in the workforce, this issue retains its importance in Türkiye both due to historical perspectives and current developments. Mustafa Kemal Atatürk's statement, "There is a path by which we can proceed more confidently and more rightly: to make the great Turkish woman a partner in our work" clearly demonstrates how important women's participation in the workforce has been since the founding of the Republic of Türkiye (*cf.* [31]). In line with this understanding, the necessary social and legal regulations have been implemented throughout Turkish history to enable women to participate in working life, and significant steps have been taken to support working women.

Approximately 50% of the world's population is female, and Türkiye is no different. According to the 31 December 2024 address-based population registration system (ADNKS), 49.98% of Türkiye's population is female and 50.02% is male. The labour force participation rates by gender for the period 2014-2023 from the Turkish Statistical Institute (TURKSTAT), shown in Table 1, show that although there have been fluctuations in women's labour force participation rates over the years, there has been a general upward trend (*cf.* [32]).

	15+ age			**14-24 age**			**25+ age**		
Year	Total	Male	Female	Total	Male	Female	Total	Male	Female
2014	50.2	71.0	29.9	40.6	53.8	27.3	53.0	75.8	30.9
2015	51.1	71.3	31.3	41.9	54.2	29.6	53.7	76.1	31.9
2016	51.8	71.8	32.4	42.4	54.2	30.4	54.4	76.6	33.0
2017	52.6	72.2	33.4	43.3	55.2	31.1	55.2	76.9	34.2
2018	53.1	72.5	34.1	44.0	56.3	31.3	55.4	76.7	34.8
2019	52.9	71.9	34.3	44.5	56.1	32.6	55.0	75.9	34.8
2020	49.1	67.8	30.8	39.2	50.3	27.7	51.7	72.5	31.6
2021	51.4	70.3	32.8	41.7	53.1	29.7	53.6	74.4	33.5
2022	53.1	71.4	35.1	43.8	56.2	31.0	55.2	75.1	36.0
2023	53.3	71.2	35.8	45.6	57.4	33.1	55.0	74.4	36.4

Table 1. Labour force participation rate for persons by sex, 2014-2023 (TURKSTAT) (*cf.* [32])

Women's participation in the labour force has long been a common area of study in the disciplines of economics, sociology, and public policy. The literature in this field reveals that there are numerous individual, structural, and cultural factors that influence women's labour force participation rates. Essentially, it is emphasized that variables such as educational level, marital status, parenthood, household income, gender roles, access to public services, and regional economic structure have an impact on women's decisions to participate in employment (*cf.* [2, 16, 19, 22, 23]).

Recent studies have focused on analyzing in greater depth the multidimensional nature of the factors affecting women's participation in the workforce. In this context, studies conducted in different regions vary in terms of the data sets used, the analysis methods, and the findings reached. The Table 2 below summarizes selected academic studies conducted in recent years.

Authors	Application Area	Data Set	Method	Findings
Uunk [26]	33 European Countries Research	2008 European Values	Multilevel Logit Model	Countries with egalitarian gender roles have higher female labour force participation rates, indicating that cultural values influence work decisions.
Ukil [25]	United Kingdom	Understanding Society dataset, 2015	Probit Regression	Having children reduces mothers' participation in the workforce; age, education, and health status also affect this participation.
Tasseven et al. [24]	Organization for Economic Cooperation and Development (OECD) Countries	1990-2013, World Bank data	Panel Logit Regression Model	Women's participation in the workforce is influenced by unemployment, per capita income, and fertility rates; the most influential factor is fertility.
Varol [27]	Türkiye	2007 World Values Survey	Binary Logit Model	Women's participation in the labour force rises with education and income, but tends to decline with age, marriage, and having children.
Levent et al. [17]	Türkiye (Van)	Survey conducted with 400 women	Probit Model	Women's participation in the labour force depends mainly on education, age, and marital status, but early-age marriage lowers it.
Petrakis [21]	Greece	Greek Labour Force Survey (GLFS), 1992-2020	Probit Model and Multinomial Probit Model	Women's labour force participation is mostly driven by cohort effects, while period effects stand out in job preferences.
Algul and Yarbasi [1]	Türkiye	TÜİK – 2014 Survey on Domestic Violence Against Women in Türkiye	Multinomial Probit Model	There is a relationship between women's employment and economic status and the risk of domestic violence; working women are less exposed to domestic violence.
Elouardighi and Oubejja [8]	29 African Countries	Global Findex 2021: Survey of 15.192 women.	Probit Model	Digital financial inclusion increases women's participation in the workforce; as income increases, factors that hinder financial access decrease.
Bordoloi et al. [3]	India (Lower Assam, rural)	Survey data from 201 participants	Logistic Regression	Education increases women's decision-making power, while gender inequality reduces it; income has no significant effect.
Cakir and Dereli [4]	Türkiye (Level-2 regions)	TURKSTAT data, 2018–2020 period	Spatial Logit and Probit Models	Education increases female employment, while income inequality and long working hours negatively affect employment.
Kaya and Belke [13]	87 countries (developed, developing, and least developed countries)	Compiled from WB, ICRG ILO, and UNDP sources.	Exploratory Factor Analysis and Regression Analysis	Development and agriculture increase female labor participation, while natural resource dependence reduces it; renewables are insignificant.

Table 2. Literature review on women's participation in the labour force

The literature review conducted covers various studies examining the socioeconomic, cultural, and structural factors affecting women's participation in the workforce across different regions. While these studies reveal general trends, they also clearly demonstrate the need for in-depth analysis at the local level. The limited number of studies conducted specifically in the context of Türkiye and, on a smaller scale, in the province of Antalya, necessitates the examination of regional factors using quantitative analysis methods. In this respect, given the inadequacy of data-based research conducted at the local level in Türkiye, this study aims to fill an important gap in the literature.

In fundamental sciences and social sciences research, survey data to determine the attitudes, behaviors or preferences of individuals are among the most frequently used primary data sources (*cf.* [15]). In such data sets, dependent variables representing binary outcomes such as the presence or absence of the phenomenon under study, or whether or not a preference is made are commonly observed. This situation, where the dependent variable can only take the values 0 and 1, is defined as a Bernoulli random variable (*cf.* [9]).

This study builds on the main finding in the existing literature that women's working life should be supported. Its aim is to examine the importance of this issue and its justifications using statistical tools. In this direction, the survey data conducted in Antalya province and measuring the level of support for women's participation in business life were analyzed with logistic regression (logit) and probit models and the results were compared. In this direction, the survey data collected in Antalya province and measuring the level of support for women's participation in business life were analysed with logistic regression (logit) and probit models, and the results were compared. Following a thorough comparison of the available models, it was determined that the most appropriate model for the data set was the one selected. The analysis findings were then evaluated through this model. Furthermore, factor analysis, a multivariate statistical method, was employed to ascertain the factors into which the variables were grouped.

2. Material method

Within the scope of the present study, the sample data and the methods employed are given below.

2.1. Data

The survey data used in this study were collected in 2019 from 402 voluntary participants selected through random sampling in Antalya, Türkiye. At the time of data collection, ethical committee approval was not required; therefore, no application was submitted. Informed consent was obtained from all participants. The objective of the survey is to ascertain the extent to which respondents support the participation of women in business life. A subsequent analysis of the demographic characteristics of the participants reveals that the age range varies between 15 and 56, with 63.7% ($n = 256$) of the participants being female and 36.3% ($n = 146$) male. With regard to marital status, 70.1% ($n = 282$) of the participants were unmarried, while 29.9% ($n = 120$) were married (*cf.* [20, 29]). The 14 questions included in the survey were designed to allow participants to evaluate the items on a 5-point Likert-type scale. In this particular instance, the response marked 'Strongly disagree' was assigned a value of 1, whilst 'Agree' was assigned a value of 4, 'Undecided' was assigned a value of 3, 'Disagree' was assigned a value of 2, and finally, 'Strongly disagree' was assigned a value of 5.

2.2. Method

The methodology of the study used logit and probit models and factor analysis to analyse the level of support for women's participation in economic life. In multivariate analyses, since the dependent variable is qualitative (categorical) and this may lead to a violation of the homoscedasticity assumption in the estimated variances, the efficiency of the parameter estimates obtained by the ordinary least squares method (OLS) may be reduced (*cf.* [18]). In cases where the dependent variable is qualitative, alternative techniques such as logistic regression (logit) and probit regression models may be preferred as the basic assumptions of the OLS method may not be met. Logistic regression (logit) and probit regression models are methods of analysis used when the dependent variable has a Bernoulli distribution, where it can only take the values 0 and 1. In these models, classical regression assumptions such as normal distribution of independent variables, equality of variance-covariance matrices between groups and the existence of a linear relationship between variables are not required. For parameter estimation of logistic and probit regression models, the maximum likelihood method is generally used (*cf.* [18]). The choice between these two models, which are in principle quite similar, depends on the researcher's decision. The main difference between these two regression models is

that the logit model uses the logistic odds ratio, whereas the probit model is based on the cumulative standard normal (Gaussian) distribution function (*cf.* [11, 18]).

In the simplified logistic model, the variable 'x' represents the gender of the participant. For example, female participants may be coded in one way, while male participants may be coded differently.

$$y_i = \beta_0 + \beta_1 x_i + u_i. \tag{2.1}$$

The dependent variable 'y' refers to the respondent's support for women's participation in the labour market. If the respondent supports women's participation in the labour market, '$y = 1$', if not, '$y = 0$'. Equation (2.1) is actually a linear dependence model. However, since the dependent variable has only two possible values, this model is also referred to in the literature as a 'linear probability model'. Here x_i denotes the observed value of the independent variable, while the conditional expected value of y_i conditional on x_i is denoted as $E(y_i|x_i)$. At the same time, given x_i, the probability of the event $(y_i = 1)$ is expressed as $P_i(y_i = 1 \mid x_i)$. We can obtain the following by assuming $E(u_i) = 0$:

$$E(y_i|x_i) = \beta_0 + \beta_1 x_i. \tag{2.2}$$

The probability distribution of variable y_i is as follows:

$$\left.\begin{array}{c} P(y_i = 1) = p_i \\ P(y_i = 0) = 1 - p_i \end{array}\right\} \sum = 1.$$

As demonstrated above, y_i conforms to the Bernoulli probability distribution (*cf.* [11]).

The definition of expected value is given by the following equation:

$$E(y_i) = 0(1 - p_i) + 1(p_i) = p_i. \tag{2.3}$$

Equation (2.2) and (2.3) can be compared and the following equation can be written:

$$E(y_i|x_i) = \beta_0 + \beta_1 x_i = p_i. \tag{2.4}$$

Equation (2.4) demonstrates that the conditional expected value of (2.1) is equivalent to the conditional probability of y_i. The expected value of a Bernoulli random variable is defined as the probability that the random variable is equal to 1 (*cf.* [11]). In this context, the expression $p_i = E(y_i = 1|x_i)$ denotes the expected value of the probability of supporting women in the labour force for a specified value of x_i (gender, in this example). In summary, this expression signifies the probability of a respondent of a specific gender expressing support for women's participation in the workforce.

The following equation can be used to calculate the logistic distribution function:

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_i)}} = \frac{1}{1 + e^{-z_i}}, \tag{2.5}$$

where $z_i = \beta_0 + \beta_1 x_i$ equation (2.5) is the logistic distribution function (*cf.* [11]). z_i is a variable in the range from $-\infty$ to $+\infty$ and p_i takes a value between 0 and 1 (*cf.* [11]).

It is seen that the relationship of p_i with z_i (i.e. x_i) is not linear. At the same time, the relationship of p_i not only with x_i but also with β 's is non-linear.

If the probability that women are supported in the labour force is p_i (equation (2.5)), the probability that women are not supported in the labour force is $1 - p_i$.

$$1 - p_i = \frac{1}{1 + e^{z_i}}. \tag{2.6}$$

If we consider equations (2.5) and (2.6);

$$\frac{p_i}{1 - p_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{z_i}, \tag{2.7}$$

we obtain equation (2.7). Ratio of the probability of an event happening to the probability of it not happening $\frac{p_i}{1-p_i}$ is called odds ratio (*cf.* [11]). Let us take the natural logarithm of equation (2.7):

$$L_i = \ln\left(\frac{p_i}{1-p_i}\right) = z_i = \beta_0 + \beta_1 x_i, \tag{2.8}$$

we obtain equation (2.8). So the natural logarithm of the odds ratio gives us the logit function model (*cf.* [11]).

The logistic regression (logit) model uses the logistic likelihood ratio, while the probit model is based on the standard normal distribution. In the probit model, the response of individual i. n the survey is denoted by y_i and this response is influenced by one or more independent variables. This relationship is modelled by a latent variable expressed as $y_i = \beta_0 + \beta_1 x_i$ (*cf.* [11]).

As in the example we gave while analyzing the logit model, if a respondent supports women's working life, $y_i = 1$, and if not, $y_i = 0$. In the probit model, each individual's decision-making process is assumed to have an unobservable threshold value (y_i). If this latent threshold value (y_i), exceeds a certain critical threshold, it is assumed that the individual supports women's working life ($y_i = 1$); otherwise, it is assumed that the individual does not ($y_i = 0$). This unobservable threshold (y_i*) is assumed to have a standard normal distribution with equal mean and variance (*cf.* [11]).

Under the assumption of normality, the probability that y_i* is less than or equal to y_i can be calculated using the standardised normal cumulative distribution function as follows:

$$p_i = p(y = 1|x) = p(y_i^* \leq y_i) = p(z_i \leq \beta_0 + \beta_1 x_i) = F(z_i \leq \beta_0 + \beta_1 x_i). \tag{2.9}$$

Given above, $p(y = 1 \mid x)$ is the probability of the event occurring, z_i is the standardised normal variable ($z \sim N(0, \sigma^2)$). The normal cumulative distribution function of y_i can be written explicitly as follows (*cf.* [11]).

$$F(y_i) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{y_i} e^{-\frac{z}{2}} dz = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\beta_0+\beta_1 x_i} e^{-\frac{z}{2}} dz. \tag{2.10}$$

If we take the inverse of equation (2.10) to obtain y_i:

$$y_i = F^{-1}(y_i) = F^{-1}(p_i) = \beta_0 + \beta_1 x_i \tag{2.11}$$

is found. Thus, the probit model is obtained (*cf.* [11]).

Factor analysis was used in the second part of the study. Factor analysis is a multivariate statistical technique that aims to analyse the relationships between a large number of variables obtained through the questionnaire in this study and group them into fewer, more meaningful and related factors (*cf.* [12]). This method provides an approach that explains the common variance between observed variables and reveals the underlying hidden structures. It aims to reduce the size of data obtained from survey questions, making them more interpretable and reducing potential multicollinearity problems between variables. This provides a clearer understanding of the key dimensions that influence the level of support for women's participation in economic life.

3. Results

This study investigated the level of support for women's participation in economic life among 402 randomly selected participants from Antalya province. The aim of the study is to determine the attitudes of the participants towards this issue and the factors that influence these attitudes. Pie charts showing the distribution of the survey questions according to the answers given are presented in Table 3.

The graphs presented in the Table 3 offer a visual representation of the distribution of participants' opinions on the subject of "supporting women in working life". The data were collected according to a 5-point Likert scale; the option "strongly disagree" is represented by blue, "disagree" by green, "undecided" by gray, 'agree' by purple and "strongly agree" by yellow. Upon examination of the graphs, it is evident that the intensity of the yellow colour

attracts particular attention, particularly in items expressing a favourable opinion of women's work. This observation indicates that the majority of the participants hold a positive view of women's contributions.

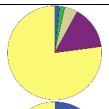
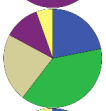
SURVEY QUESTIONS	PIE CHARTS OF RESPONSES
F1: I am of the opinion that women should be part of the world of work.	
F2: In my opinion, women's working lives are a hindrance to being good mothers and wives.	
F3: I think that women who work have less time to spend with their families	
F4: I think women should not work after having a baby.	
F5: I think it is right that women are asked about their marital status during the recruitment process.	
F6: I think that the fact that women's emotional side is dominant has a negative impact on their career development.	
F7: I think women should be involved in every professional group.	
F8: I think women are subjected to mobbing in working life.	
F9: I think women should also be in leadership positions in working life.	
F10: I think there are social pressures on women in the workplace.	
F11: I think women see work as a way out of domestic violence.	
F12: I think women's rights are protected at work.	
F13: In my opinion, women who are in work defend their rights more freely.	
F14: I think our state gives equal importance to men and women in working life.	

Table 3. Pie charts of the answers given according to the questions asked of the interviewers

Age	Gender	Mean	N	Std. Deviation
	Male	4.226	31	1.0555
15-18	Female	4.838	37	0.4418
	Total	4.559	68	0.8355
	Male	4.500	46	0.8367
19-25	Female	4.789	109	0.6677
	Total	4.703	155	0.7313
	Male	4.419	43	1.0055
26-35	Female	4.821	78	0.5523
	Total	4.678	121	0.7661
	Male	4.150	20	1.0894
36-45	Female	4.773	22	0.6853
	Total	4.476	42	0.9432
	Male	3.667	6	1.3663
45 and over	Female	5.000	10	0.000
	Total	4.500	16	1.0328
	Male	4.336	146	0.9985
Total	Female	4.813	256	0.5908
	Total	4.639	402	0.7970

Table 4. Mean, standard deviation, and sample size values of responses to the statement 'I am of the opinion that women should be part of the world of work' by age group and gender

The Table 4 shows the means of participants responses to the statement 'I am of the opinion that women should be part of the world of work' by age group and gender. The answers were given using a Likert scale (i.e. from 1 to 5). Overall, female respondents were more likely than male respondents in the same age group to agree that women should be involved in working life. Women's means are generally higher than men's means. Looking at the overall mean scores, the mean score for women is 4.813, while the mean score for men is 4.336. This shows that women generally have a higher level of agreement with this statement.

Trends by age group:

15-18 age group: In this age group, the average participation of both men (4.226) and women (4.838) is high. Female participation is also higher in this age group.

19-25 age group: In this age group, the average for women (4.789) is higher than for men (4.500). Participation is high for both sexes.

26-35 age group: The difference between women (4.821) and men (4.419) is again significant.

36-45age group: In this age group, the average for women (4.773) is higher than for men (4.150) and this is one of the age groups where the difference is most significant.

Age group 45 and over: In this age group, the average for women is 5.000, while the average for men is 3.667. It can be seen that women fully agree with this statement. However, it should be noted that the number of participants in this age group (male: 6, female: 10) is lower than in the other age groups.

Standard deviation values indicate the spread of participants' responses. Low standard deviation values indicate that respondents' answers are more concentrated around the mean, while high standard deviation values indicate a wider distribution. For example, the standard deviation for women aged 45 and over is 0.000. This means that all women in this group gave the same answer (probably '5 - Strongly Agree'). This situation shows that there is a high level of agreement with the idea that women should participate in working life in general. Although this general trend is maintained across age groups, the full participation of women in the 45+ age group is striking. Although the level of participation of men also varies across age groups, it is generally lower than that of women.

In this context, the results of regression analysis obtained through computer applications of logit and probit models, which are probability-based methods of analysis, are examined comparatively. The aim is to determine the most appropriate model for the sample data set analysed by identifying the main differences between the models. The parameter estimates and significance levels obtained from the model are interpreted in detail. The sample dataset to be used in the study consists of the results of logit and probit regression analyses of the level of support for women's

working lives discussed in studies Ozturk and Yalcin [20] and Yalcin [29] (*cf.* [20, 29]).

The general mathematical expression of the model to be estimated is as follows:

$$\text{woman} = \beta_0 + \beta_1 \text{age} + \beta_2 \text{gender} + \beta_3 \text{marital status} + \mu.$$

The dependent variable, called "woman" in the model, is a latent variable representing the degree to which individuals support women in the workplace. This variable takes the value 1 for individuals who support women and 0 for individuals who do not (*cf.* [20]). Among the independent variables there are dummy variables "age" indicating the age of the individual, "gender" indicating the gender (female=1, male=0) and "marital status" indicating the marital status (single=1, married=0) (*cf.* [20]).

Stata 14 software was used to estimate the logit and probit models. The logit and probit model estimates obtained as a result of the analysis are presented in Table 5 (*cf.* [20, 29]). For the estimation of the logit model, the analysis was completed after 4 iterations.

Variable	**Logit Model Coefficient**	**Probit Model Coefficient**
Constant	0.924 (0.412)	0.580 (0.325)
Age	0.0164 (0.584)	0.010 (0.529)
Gender	1.830* (0.000)	0.899*(0.000)
Marital Status	0.369 (0.510)	0.192(0.513)
	Prob > LR=0.00	Prob > LR=0.00
	LR chi2(3)=22.12	LR chi2(3)=22.16
	Log-Lik Full Model=-100.615	Log-Lik Full Model=-100.595
	Prob > chi2=0.0001	Prob > chi2=0.0001
	Pseudo R^2=0.0990	Pseudo R^2=0.0992
N=402	AIC=0.520,BIC=-2185.358	AIC=0.520,BIC=-2185.398

*: 01 p-value < 0.01, p-values are given in brackets

Table 5. Estimation results for logit and probit models (*cf.* [20, 29])

Firstly, when analysing the log-likelihood values (Log-Lik Full Model), we find -100.615 for the logit model and -100.595 for the probit model. Since larger log-likelihood values indicate a better model fit (-100.615 < -100.595), the probit model seems to be more appropriate according to this criterion. The likelihood ratio statistic (LR statistic) is significant for both models (Prob > LR = 0.000 < 0.05). The pseudo-R^2 values are 0.0990 for the logit model and 0.0992 for the probit model. Since the explanatory power of the model increases as the pseudo R^2 value approaches 1, the probit model is more appropriate according to this criterion, since the value of the probit model (0.0992) is closer to 1 than the logit model. The variance of the estimated values (variance of y*) was found to be 4.069 for the logit model and 1.189 for the probit model. As smaller variance values are preferred (1.189 < 4.069), the probit model performs better in this respect.

The Akaike Information Criterion (AIC) value, a frequently employed metric in model selection, yielded a result of 0.520 for both models. This finding indicates that this criterion alone does not offer discriminatory information for model selection purposes. However, the Bayesian Information Criterion (BIC) values are -2185.358 for the logit model and -2185.398 for the probit model. As smaller BIC values are indicative of a superior model fit (see -2185.398 < -2185.358), the probit model is deemed the more appropriate choice according to the BIC criterion (*cf.* [18, 29]).

Following a comprehensive evaluation of the model selection criteria, it is concluded that the probit model is a more appropriate model for this data set. Consequently, the interpretation of the analyses is based on the results of the probit model.

In the analysis of the results of the probit model, it is not necessary to consider the Variance Inflation Factor (VIF) values in order to evaluate the multicollinearity problem, since there is only one quantitative variable in the data set. With regard to the overall significance of the model, the Likelihood Ratio Chi-Square (LR chi2) statistic is 22.16, and the p-value (Prob > chi2) is 0.0001 (p < 0.05). This result indicates that the model is statistically significant.

Following an examination of the coefficients of the independent variables in the model, it was determined that the coefficients of the shadow variables age ("age") (p = 0.529 > 0.1) and marital status ("marital status") (p = 0.513 >

0.1) were found to be statistically insignificant. In contrast, the coefficient of the gender shadow variable (0.899) was positive and statistically significant ($p = 0.000 < 0.1$) (*cf.* [29]). Given that the primary category in this variable is defined as male, this finding suggests that "women are more likely to support working life" than men.

The findings obtained within the scope of this study coincide with some aspects of the existing literature, while differing in other respects. According to the Probit model results, only the gender variable was found to be statistically significant; accordingly, women show a higher tendency than men to support women in the working life. This finding supports Bordoloi's observation that gender inequality limits women's decision-making abilities (*cf.* [3]).

On the other hand, studies conducted by Ukil [25] and Levent et al. [17] show that individual factors such as age and marital status are decisive in women's participation in the labour force (*cf.* [17, 25]). However, in this study, the variables of age and marital status were not found to be statistically significant. This inconsistency may stem from the social context of the study, the sample structure, or the measurement methods of the variables. Furthermore, the absence of factors such as "having children" or "level of education" in the data set may have prevented the effects of these variables from being observed.

Petrakis [21], on the other hand, explains women's labour force participation through generational, age, and period effects, noting that age is a significant factor in both models (*cf.* [21]). In contrast, age was not found to be significant in this study. This suggests that age alone may not be a sufficient explanatory factor and should be evaluated in conjunction with interactive factors such as generation/period.

According to these assessments, while the importance of the gender variable is notable, the lack of effect of individual variables such as age and marital status is considered to stem from contextual and structural differences.

The factor analysis applied to the 14 items used in the study, the objective of which was to measure women's support for working life, aims to identify the main dimensions of these support attitudes. The subsequent analysis sought to identify the common factors that grouped these items and to determine how these factors explained the general supportive tendency. The primary objective of this study was to reduce the dimensionality of the 14 variables by expressing them through fewer significant factors. Following the implementation of factor analysis, variables that exhibited significant correlations were grouped under independent factors. The calculations pertaining to factor analysis were conducted using IBM SPSS Statistics 23.

In order to evaluate the suitability of the data set for factor analysis, Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin (KMO) value were examined. The KMO value was found to be 0.867. The proximity of this value to 1 suggests that the sample size and the correlation level between the variables are adequate for factor analysis. Following the implementation of Bartlett's Test of Sphericity, the chi-square statistic was determined to be 1513.689, and the significance level (p-value) was established as 0.000. The observed p-value ($p < 0.01$) indicates the rejection of the null hypothesis that the correlation matrix is equal to the unit matrix. This finding lends support to the hypothesis that there is sufficient correlation between the variables to apply factor analysis. It is evident that the KMO value and the results of Bartlett's Test of Sphericity both demonstrate that the data set is appropriate for factor analysis (*cf.* [18]).

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.505	32.175	32.175	4.505	32.175	32.175	3.933	28.092	28.092
2	1.712	12.229	44.404	1.712	12.229	44.404	2.180	15.571	43.663
3	1.141	8.148	52.552	1.141	8.148	52.552	1.244	8.899	52.552
4	0.966	6.900	59.452						
5	0.794	5.673	65.124						
6	0.740	5.289	70.414						
7	0.681	4.864	75.277						
8	0.632	4.518	79.795						
9	0.589	4.204	83.999						
10	0.537	3.833	87.831						
11	0.506	3.613	91.445						
12	0.432	3.086	94.531						
13	0.387	2.764	97.296						
14	0.379	2.704	100.000						

Extraction Method: Principal Component Analysis

Table 6. The number of factors and variance ratios that are explained by the factors in factor analysis

Table 6 presents the number of factors obtained as a result of the factor analysis and the variance ratios explained by these factors. The main criterion for determining the number of factors is that the eigenvalue value should be greater than 1 (*cf.* [18]). When Table 6 is examined, it is seen that 3 factors were obtained from 14 variables. The "% of Variance" column in the table shows the ratio of each factor explaining the total variance, while the "Cumulative %" column shows the cumulative variance explained by the factors. According to this, the factor with the highest explanatory power is the first factor with 28.092% variance explanation rate. Together, the three factors explain 52.552% of the total variance. This ratio shows that a significant portion of the variance in the variables analyzed can be expressed through these three main factors.

Factor 1: Attitudes towards women's working life. **(The variance explanation ratio is 28.092%)**
F1: I am of the opinion that women should be part of the world of work. F2: In my opinion, women's working lives are a hindrance to being good mothers and wives. F3: I think that women who work have less time to spend with their families. F4: I think women should not work after having a baby. F5: I think it is appropriate to ask a woman about her marital status during the recruitment process. F6: I think that the fact that women's emotional side is dominant has a negative impact on their career development. F7: I think women should be involved in every professional group. F9: I think women should also be in leadership positions in working life. F13: In my opinion, women who are in work defend their rights more freely.
Factor 2: The perception of equality and the issue of discrimination against women in the context of working life. **(The ratio of the variance is 15.571%)**
F8: I think women are subjected to mobbing in working life. F10: I thing there are social pressures on women in the workplace. F12: I think women's rights are protected at work. F14: I think our state gives equal importance to men and women in working life.
Factor 3: The protective role of working life. **(The ratio of the variance is 8.889%)**
F11: I think women see work as a way out of domestic violence.
KMO=0.867 Chi-square value for Bartlett's Test=1513.689, p-value=0.000 Total variance explained=52.552%

Table 7. Results of the Factor analysis on the factors affecting women's participation in the workforce

Following rotation, the factor loadings were examined. This involved consideration of the rotated (varimax) factor loadings, and determination of the distribution of 14 variables into three factors. The allocation of each variable to the factor with the highest factor loading in absolute value was conducted. Consequently, F1, F2, F3, F4, F5, F6, F7, F9, F13 were allocated to Factor 1; F8, F10, F12, F14 to Factor 2; and F11 to Factor 3 (Table 7).

The three factors obtained as a result of the factor analysis were named as follows: The first factor was entitled "Attitudes towards women's working life", as it encompassed items pertaining to gender roles and women's position in business life. The second factor was designated "Perception of equality and discrimination against women in working life", given its focus on structural inequalities and discrimination perception. The third factor was labelled "Protective role of working life", as it included the perception of working life as a means of protection from violence. In this study, conducted in Antalya, the factors motivating support for or lack of support for women in the workforce were examined through a scale comprising three factors, with a variance explanation rate of 52.552%.

4. Conclusion

In Antalya, 402 subjects were selected via a simple random sampling method and asked whether they supported women's participation in working life. Upon analysis of the obtained data, the factors influencing women's participation in business life and social perceptions of this issue were examined across multiple dimensions. The data obtained from the survey were analysed using logit and probit models, and the results of both models were compared. Following a thorough examination of the available data, it was determined that the probit model provides a superior fit to the data set. An examination of the model selection criteria reveals that the probit model is more appropriate than the logit model (Log-Lik Full Model probit: -100.595, logit: -100.615; Pseudo R^2 probit: 0.0992, logit: 0.0990; Variance of y* probit: 1.189, logit: 4.069; BIC probit: -2185.398, logit: -2185.358). The results of the probit model indicate that gender is a significant factor in supporting women's participation in business life. The coefficient of the gender variable was found to be 0.899, which is statistically significant ($p=0.000<0.1$).

Following the implementation of the factor analysis, the attitudes of women towards working life were categorised under three primary factors. In the factor analysis, 14 questionnaire items were utilised. The factors and the variance explained by them are as follows: The first factor, entitled 'Attitudes towards women's working life', accounted for 28.092% of the variance. The second factor, entitled 'Perception of equality and discrimination against women in working life', accounted for 15.571% of the variance. The third factor, entitled 'Protective role of working life', accounted for 8.889% of the variance. The factors identified in this study unveil a range of social and psychological dimensions that influence women's engagement in business life. Furthermore, an analysis of the responses to the statement "I think that women should be given a place in working life" revealed that female participants exhibited a higher level of agreement with this statement. The mean level of agreement for women is 4.813, while for men it is 4.336. When analysed according to age group, it was determined that the average level of participation of women in each age group was higher than that of men.

The findings of the study provide important information that should be taken into consideration by policy makers, employers and society in general in order to support women's participation in business life and overcome the difficulties encountered in this process. The findings of this study showed that the implementation of the programme was effective when carried out in a small group setting. The use of statistical tools by researchers is based on the assumption that the correct and effective use of these tools will yield more effective results in problem solving. The findings of this study showed that the implementation of the programme was effective when carried out in a small group setting.

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