

Full Length Research Article

A SCALE STUDY OF DETERMINANTS ABOUT FEMALE PARTICIPANTS TO THE LABOR LIFE

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Accepted 15th November 2015; Published Online December 30th 2015

ABSTRACT

This study is designed to find out the relationship between female participation to the labor force, internal and external factors that limiting to their labor force participation and negative aspects of working for female. This research was carried out with 900 women between the ages of 15-64, living in Eskişehir. The data was collected through "Perception Scale on determinants of Female Participation to the Labor Force" developed by researchers. These data were analyzed with Second Order Confirmatory Factor Analysis by using the statistical package LISREL. The findings from the study revealed that the scale was valid and reliable and that internal factors and external factors that limiting to their labor force participation and negative aspects of working for female affect directly female participation to the labor force.

Key words: Social gender, Female, Female and labor life, Position in economic life of women

INTRODUCTION

In Turkey, societal gender based workloads and care services are factors that inhibit female participation to the labor force, and being married is also another factor that diminishes female participation to the labor force, especially in urban areas. Before deciding whether they are going to work outside of their houses or not, women needs to consider if their house work will be set back, who will take care of the children and the elderly and how much time will they be able to set aside for the house works during non-work hours. Society based inequality in education is another factor that decreases the participation to labor force. The economic growth in Turkey is not reflected fairly in employment of female. Economic growth, employment and unemployment are other important factors that affect participation to the labor force as well. High rates of unemployment discourages women from making the decision of seeking employment in the workforce market. The technological advancements are a factor in this as well, because it increases the skill requirements of occupations and this in turn causes a decrease in participation to the labor force of women who are not very highly skilled (TÜSİAD, 2008: 168).

In today's world, women face discrimination in participation to the economic life at the foremost. Undoubtedly, one of the most important reasons behind this is the persistence of some of the socio-cultural obstacles, the ones that keep the women from having the same opportunities or getting the same wages in the same occupation as a man.

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The traditional understanding that women's work is a work done to support the family puts the female workforce in the status of a reserve workforce, one that is needed in the periods of economic growth, and discarded in the periods of economic regression. In developed countries, female participation to the labor force has increased greatly in the recent years. On the other hand, female participation to the labor force in Turkey is showing a trend towards decreasing (TÜSİAD, 2008: 10). The goal of this study is to develop a perception scale that would help in determining reason behind this trend and the views on the factors that affect the participation to labor force.

METHODS

Sample

The participants were selected randomly from Eskişehir province center and the Sarıcakaya and Seyitgazi county and villages. The study was carried out 900 economically active women, who are aged between 15 and 64.

Data Collection

The goals of this research require a measurement tool to determine the views on the determinants that affect the female participation to the labor force. Despite its importance in ensuring the equality of male and female participation to the social and economic life and increasing the female participation to the labor life, in Turkey, scale based studies that are oriented towards determining the views on the determinants that affect female participation to the labor force are very limited. In today's world, equality of genders in a society is very important and, in this context, the lack of a

measuring tool that works to determine the reasons behind female participation to the labor force is an important deficiency. To meet this deficiency and to define the views on the reasons behind female participation to the labor force, "Perception Scale on Determinants of Female Participation to the Labor Force" (PSDFPLF) was developed. When establishing the items in scale, a literature review was done on the fields of labor force, participation to labor force and female participation to the labor force to review the foreign or domestic researches done on the subject and the scales that were developed to measure the female participation to the labor force. As a result of the literature review done on the field, 18 perception items were written.

It was taken care to make sure that half of these items included the positive side of the perception dimension while the other half included statements on the negative side of the perception dimension, and it was also ensured to include cognitive, emotional and behavioral statements. 7 of the items are statements on internal factors that limiting to female participation to the labor force, 5 of the statements are on external factors that limiting to female participation to the labor force, and 6 of the statements are on the negative aspects of working for female.

The Validity and Reliability Study of Perception Scale on Determinants of Female Participation to the Labor Force

The perception scale created after the literature review on the fields of labor force, participation to the labor force and female participation to the labor force was examined by an expert in the context of language. The opinions of specialists working in universities were taken for content validity. In line with the reported opinions, the PSDFPLF has been given as final form, which was created to determine the views on the determinants that affect the female participation to the labor force, was shaped after necessary corrections were made pursuant to the opinions of the field specialists. Then, PSDFPLF was applied on 33 non-study group participants who study in the Faculty of Economics and Administrative Sciences of the Anadolu University as a pilot study.

5 point grading for reactions was preferred for the perception items in this research. The participants were asked to grade every single one of the perception statements with one of the following categories: "strongly disagree - disagree- neutral-agreed - strongly agreed". To calculate a total for each of the participants, the most positive category was taken as 5 points and the most negative category was taken as 1 point, and every question was given a grade between 1 and 5 (Turgut, 1977). To determine the items that will make up the scale under development, an item-total correlation was calculated for each of the items working with the data gathered from the students in question.

In selection of the items, item total correlation coefficient higher than .20 are considered (Tavşancıl and Keser, 2002). The result for the item analysis, which was done to assess the distinctiveness of the items in the scale, has showed that 16 of the items in the scale have an item-total correlation value higher than .20. This finding shows that every single one of these 16 perception statements has a distinguishing characteristic. The reliability factor of the whole scale was calculated as Cronbach α = .89. This value shows that the scale

is reliable. As a result of the preliminary test, it was seen that the items are clearly understood, albeit some of them needed changes in expression. The items in need of changes in expression were changed to give the data gathering tool its final format. PSDFPLF was applied to the pilot study group and then it was applied to the 914 women, aging between 15 and 64, who reside in Eskişehir province center and Sarıcakaya and Seyitgazi counties and villages. As stated before, 14 surveys were not included in the analysis since they were not filled according to the instructions. To test the validity and reliability of the scale, Structural Equation Modeling (SEM), made up of three fundamental components, was applied to the data used in the analysis, which was gathered from 900 people.

When the historical development of SEM, a method used in many disciplines today to resolve the research problems about causal links between latent structures measured by observed variables, was examined, it was noted that it is made up of three fundamental components called the path analysis, conception synthesis of structural and measurement models and general prediction processes. The goal of the path analysis is to predict the importance and size of the assumed causality links between the variables and also to make policy arguments. For this reason, this analysis' objective was to determine the relation series between cause and effect variables as it is important to know which variable or variables need to be considered as an effect variable.

The primary goal of this study is to find out whether there is a causal link between the internal and external factors that limiting to female participation to the labor force and variables such as negative aspects of working from the viewpoint of female and female participation to the labor force. To this end, the cause-effect relations must be established for the variables of the research, in other words, SEM must be established and a path analysis must be made. To meet this need, factor structures determined by the exploratory factor analysis (EFA) was exposed to second level confirmatory factor analysis (CFA). SEM was created to be a hybrid between two different statistical traditions. First of these traditions is the factor analysis, which is used by psychology and psychometry.

The other one is the equality model, first used in the fields of genetics but developed concurrently in the field of econometric (Çokluk et al., 2010). SEM is an extensive statistical technique that is used to test the causal relations between observed and latent variables. It is a systematic tool that is used in testing theoretic models and the assessment of relations between variables in fields such as econometric, psychology, sociology, marketing and education sciences. SEM assumes that there is a causality structure between latent variable sets and it also assumes that these latent variables can be measured through observed variables (Yılmaz et al., 2006: 172).

Exploratory Factor Analysis

EFA is a statistical technique that aims to explain the structure of a measuring tool by bringing together all of the variables that measure the same structure or the same characteristic (Büyüköztürk, 2002: 117). Factor analysis can be used for many reasons (Baykuk, 2000: 389). In this study, Factor analysis was used to determine the structure of the scale. The

higher the variation rates calculated by the Factor analysis, the stronger the scale's factor structure (Gorsuch, 1974; Lee and Comrey, 1979. Trans. Tavşancıl and Keser, 2002: 87).

In social sciences, variation rates between 40% and 60% are considered sufficient (Scherer, Wiebe Luther, Adams, 1988. Trans. Tavşancıl and Keser, 2002). When distinguishing items that do not measure the same structure; the basis was the items having a factor load of at least .45 and being under a single factor (if the item has high factor load under two factors, the difference must be at least .10) while paying attention to items having high factor load under the factor they are under, while also making sure that item has a high factor load under only a single factor (Büyüköztürk, 2002). When distinguishing items that do not measure the same structure in the factor analysis; the importance was placed on the items having a load value above .45 under the factor they are placed in. Using these criteria, items that have variation values below .40 and factor loads below .45 in the applied Principal Component Analysis, namely items 7, 10, 14, 15 and 16, was removed from the scale, leaving only 11 items.

The 11 items with Principal Component Analysis applied are gathered under 3 factors that have item eigenvalues higher than 1.00. Therefore, PSDPFLF can be considered as 3 factored. The total variation explained by these 3 factors is 61.89%. According to the Principal Component Analysis, the first factor has an eigenvalue of 4.52 and expressed variation of 41.04%, the second factor has 1.29 eigenvalue and 11.68% variation and the third factor has an eigenvalue of 1.01 and variation of 9.17%. As it is noted on the table 7, the average variation of the three factors defined in relation to the items varies between .50 and .74. This finding shows that three factors determined as important factors in the analysis do in fact explain a significant portion of the total variation in the items and the scale related variation.

Items with factor load values above .45 were taken, and, according to this criterion, there are 11 items are under the first factor and the first factor's load values vary between .45 and .74. This situation shows that PSDPFLF has a general factor. The fact that the first factor expresses 41.04% variation in the Principal Component Analysis is another indicator for this. When the results of the item analysis done to assess the distinctiveness of the items in the scale are examined, it was noted that the item-total correlation factor varies between .37 and .63. This finding demonstrates that 11 perception statements all have distinguishing characteristics. The reliability factor for this criterion was calculated as Cronbach $\alpha=.84$. This can be interpreted as the criterion being reliable.

Since PSDPFLF is three factored, varimax technique was used as a rotation process to determine the items that have high relations with the factors and also to make interpretation of these relations easier (Büyüköztürk, 2002). Table 2 contains the item-total correlation factors for the varimax rotation done to examine PSDPFLF's factor constructs, the results of the principal components analysis and the load values on the four factors. When distinguishing items that do not measure the same structure; the basis was the items having a factor load of at least .45 and being under a single factor (if the item has high factor load under two factors, the difference must be at least .10) while paying attention to items having high factor load under the factor they are under while also making sure

that item has a high factor load under one factor and a low factor load under all other factors (Büyüköztürk, 2002). It was determined that all of the item's factor loads are fitting to this criterion and 11 items were left in the scale. Remaining 11 item's distribution according to the factors are given out in the Table 1.

Table 1. Remaining 11 items distribution according to the factors

Factors	Items
1. Factor: External Factors that Limiting to Female Participation to the Labor Force	4, 5, 8 and 9
2. Factor: Internal Factors that Limiting to Female Participation to the Labor Force	1, 2 and 3
3. Factor: Negative Aspects of Working for Female	6, 11, 12 and 13
4. Factor: External Factors that Limiting to Female Participation to the Labor Force	4, 5, 8 and 9

As it can be seen in Table 2, factor loads of the four items under the first factor varies between .65 and .78; factor loads of the three items under the second factor varies between .71 and .84; factor loads of the four items under the third factor varies between .56 and .74. These findings show that the scale is made up of items that have high relations with each other and it measures the structure which is defined as the views on the reasons that affect women's participation in the workforce. The first factor expresses the 41.04% of total variation related to the scale, the second factor expresses 11.68% and the third factor expresses the 9.17%. Total expressed variation by these factors is 61.89%. Average variation expressed by these three factors varies between .47 and .74. These findings show that factor structure of the scale is strong. Factors were named according to the meanings of the items that they contain. First factor is named "External Factors that Limiting to Female Participation to the Labor Force"; second factor is named "Internal Factors that Limiting to Female Participation to the Labor Force" and the thirteenth factor is named "Negative aspects of working for Female".

When the item analysis done to assess the distinctiveness of each of the items in the scale was examined, it was seen that item-total correlations vary between .37 and .63, which is a high value. This finding shows every single one of the 11 perception statements have a distinguishing characteristic. The reliability factor for the whole scale was calculated as Cronbach $\alpha=.84$. When the results of the analysis done to assess the distinctiveness of the items in the factor named "External Factors that Limiting to Female Participation to the Labor Force", it was noted that item correlation factor calculated for each of the items varied between .56 and .63.

First factor's reliability factor is Cronbach $\alpha=.79$. When the results of the analysis done to assess the distinctiveness of the items in the factor named "Internal Factors that Limiting to Female Participation to the Labor Force", it was noted that item correlation factor calculated for each of the items varied between .63 and .67. Second factor's reliability factor is Cronbach $\alpha=.79$. When the results of the analysis done to assess the distinctiveness of the items in the factor named "Negative Aspects of Working for Female", it was noted that item correlation factor calculated for each of the items varied between .38 and .54. Second factor's reliability factor is Cronbach $\alpha=.69$. These values can be interpreted as the scale being reliable.

Confirmatory Factor Analysis

As stated previously, the factor structures that were defined by the EFA was exposed to CFA. But, before the application of the CFA, a SEM model was defined according to the structures of the determined factors to make the analysis of PSDFPLF's validity and reliability, and to determine how well does PSDFPLF explain the three latent variables of female participation to the labor force. The Figure 1 lays out the model that explains the relationship between external factors that limiting to female participation to the labor force, internal factors that limiting to female participation to the labor force and negative aspects of working for female.

As it can be seen in Figure 1, the paths that are shown as the one way arrows between the variables in SEM are actually the hypotheses of this study. According to this, variables such as internal and external factors that limiting to female participation to the labor force and negative aspects of working for female affect female participation to the labor force. In the model, the variables that were predicted to affect female participation to the labor force were designed as independent latent variables while female participation to the labor force was designed as dependent latent variable.

Table 2. Basic components analysis and varimax rotation results

Order No	Item No	Item-Total Correlation Coefficient	Common Factor Variance	Factor-1 Load Value	After Rotation Factor Load Value		
					Factor-1	Factor-2	Factor-3
1	M1	.53	.74	.65	.21	.83	.10
2	M2	.46	.73	.59	.10	.84	.10
3	M3	.63	.67	.74	.32	.71	.26
4	M4	.55	.65	.65	.76	.27	.07
5	M5	.55	.66	.65	.78	.17	.13
6	M6	.59	.53	.68	.22	.41	.56
7	M8	.60	.60	.71	.65	.17	.37
8	M9	.60	.63	.70	.68	.10	.40
9	M11	.47	.51	.58	.18	.14	.68
10	M12	.55	.62	.63	.14	.24	.74
11	M13	.37	.47	.45	.16	-.04	.67

Explained Variance

Total = % 61.89, Factor-1 = % 41.04, Factor-2 = % 11.68, Factor-3 = % 9.17, Cronbach α = .84

Table 3. Second Level CFA Results

Variables	Correlation Coefficients	t value	R ²	Structural Equations			
				Correlation Coefficients	t value	R ²	
External Factors that Limiting to Female Participation to the Labor Force	DISFAK1	.86	20.88	.44	.03	18.17	.60
	DISFAK2	.91	22.37	.49			
	DISFAK3	1.02	24.53	.56			
	DISFAK4	1.05	24.53	.56			
Internal Factors that Limiting to Female Participation to the Labor Force	ICFAK1	.99	29.50	.70	.03	21.79	.52
	ICFAK2	1.12	34.92	.87			
	ICFAK3	.96	25.92	.58			
Negative Aspects of Working for Female	OLGOR1	.79	24.46	.44	.02	32.94	.74
	OLGOR2	.99	26.14	.60			
	OLGOR3	.99	27.49	.65			
	OLGOR4	.97	25.83	.59			

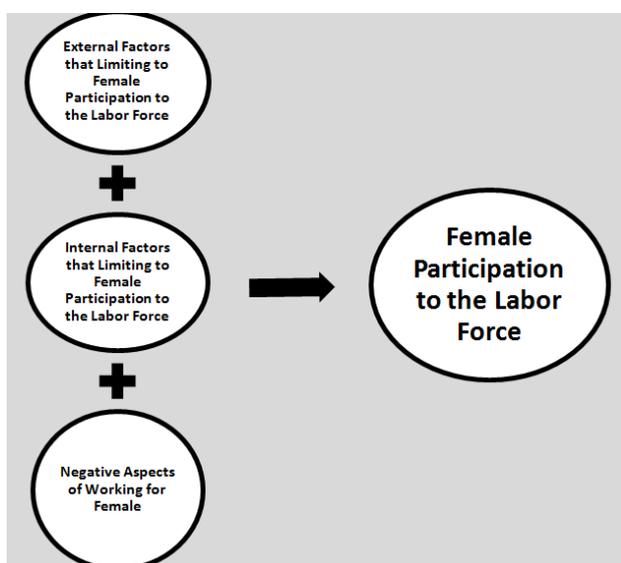


Figure 1. The proposed model

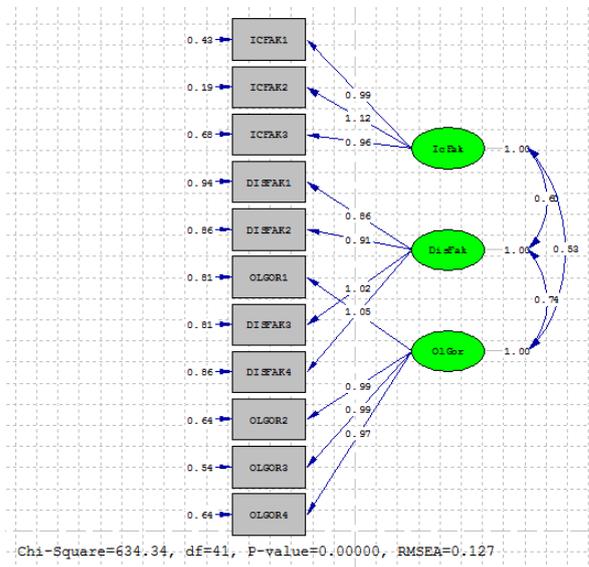


Figure 2. Path diagram for PSDFPLF

To make validity and reliability analyses for the PSDFPLF and to determine how good does the three latent variables explain the female participation to the labor force, in other words, to determine the relationship between female participation to the labor force and three latent variables, second level CFA was applied to the data group, and the path diagram for the PSDFPLF scale was given out in the Figure 2.

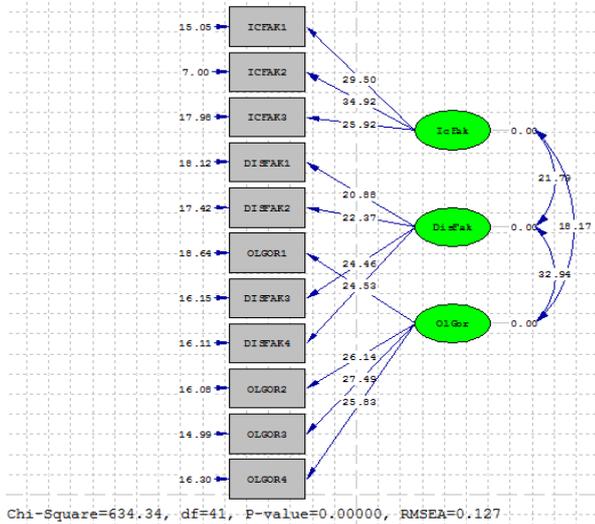


Figure 3. Relevance levels of the latent variable's explanation rates of the observed variables for the three dimension model

Figure lays out the relevance levels of the latent variable's explanation rates of the observed variables for the PSDFPLF's three dimension model. As it can be seen in Figures 2 and 3, the results of the CFA applied to the data group are given out in Table 3. Observed variable's t-value relevancy levels were checked first according to LISREL secondary level confirmatory factor analysis results applied to the gathered data. If the t-level is greater than 1.96 it is 0.05 relevant, if it is greater than 2.56, it is 0.01 relevant. According to CGA results the t-values are greater than 2.56. According to this result, t-levels of the latent variables explaining observed variables are .01 relevant. After t-values were established to be relevant, error variations of the variables were examined. As it can be seen in the Figure 4, error variations of the variables are low. Therefore, it was decided to include all the indicators in this model since relevant t-values were received for all items.

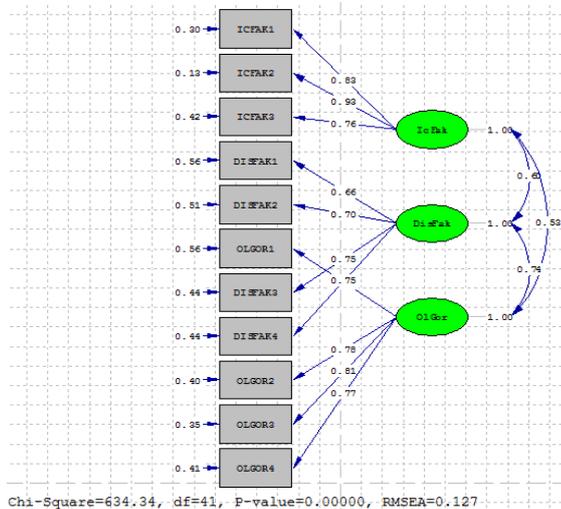


Figure 4. Examination of error variations in path diagram

After deciding which indicators would be included in the defined model according to second level confirmatory factor analysis results, model's suitability was discussed while taking the suitability criteria into account. P-value was checked primarily to define the models suitability. While the p-value's irrelevancy was a desired situation, the p-figure can be relevant depending on the size of the sample in the confirmatory factor analysis, as it is on the Figure 3. For this reason, alternative fit indexes are taken into consideration.

First of these fit indexes is ki-square statistic (χ^2). However, χ^2 is not a statistic that can be taken into consideration on its own. Therefore, it is taken into consideration after it is proportioned with the degree of freedom. If the χ^2 / df rate is lower than 3, the fit is perfect, and if it is lower than 5, it is considered to be acceptable. According to this, the χ^2 / df ratio for the analysis can be considered a low level of fit ($634.35 / 41 = 15.46$).

Root Mean Square Error of Approximation (RMSEA) has shown that it has a fit index level of .13. If the RMSEA's value is equal or lower than .05, the fit is perfect, if it is lower than .08, the fit is acceptable, and if it is .10 or greater, the fit is weak. Therefore, it can be said that the fit index for the analysis is weak. The continuation of the examination of the fit indexes shows that Goodness of Fit Index (GFI) is .89 while the Adjusted Goodness of Fit Index is .82. GFI and AGFI values are in the range between 0 and 1. If the GFI and AGFI's values are equal to or higher than .95, the fit is perfect and if they are between .90 and .94, then the fit is acceptable (Schumacker and Lomax 2004; Hooper, Caughlan and Mullen, 2008). According to this, GFI has a fit value close to the acceptable level while the AGFI has a fit value in the acceptable level.

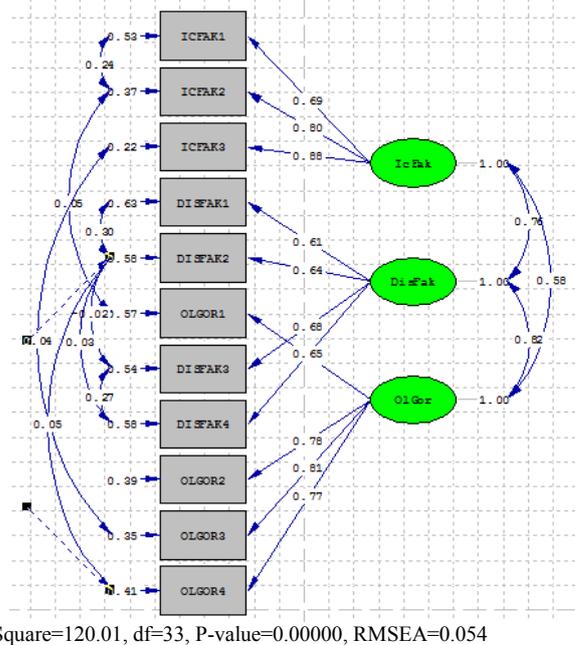


Figure 5. Path diagram after modifications

Standardized Root Mean Square Residual (RMR) index is .07. If the RMR and Standardized RMR values are lower than .05, the fit is perfect, if it is lower than .08 the fit is good and if it is lower than .10, the fit is acceptable.

According to this, standardized RMR for the analysis has a good fit. Assessments of non-normed fit index (NNFI) and comparative fit index (CFI) show the values .86 and .90 respectively. If the NNFI and CFI have values above .95 the fit is perfect and if they have values above .90, the fit is acceptable (Sümer, 2000). According to this, NNFI for the analysis has a fit value close to acceptable levels and CFI for the analysis has a fit value close to the acceptable levels. Modification suggestions were taken into consideration after the assessments of the model's suitability were made according to the second level confirmatory factor analysis.

Figure 5, shows that there are seven modification suggestions in the assessment. After the modifications, χ^2 the value of 634.34 has dropped to 120.01. After the modification, the χ^2 /sd ratio (120.01/33) was 3.64. Since this value is below 5, the fit can be considered acceptable. Assessment of the RMSEA in the path diagram shows a fit index of .054. Since the RMSEA is lower than 0.08, the fit can be considered good. After the modifications, assessments of the fit indexes, NFI (.98), NNFI (.97) and CFI (.98) were all above .95 and the standardized RMR value was below .05, which means that all of the fit indexes above are perfect fits. A GFI value of .98 can be considered a perfect fit and an AGFI value of .94 means an acceptable level of fit.

RESULTS

Findings of the research confirm the PSDFPLF's three factor structure as a model and it also shows that this developed model is suitable to explain the relationship between internal factors that limiting to female participation to the labor force, external factors that limiting to female participation to the labor force and negative aspects of working for female. The fact that the fit indexes of the developed model cannot deny the model can be shown as a proof of its reliability. According to CGA results, all standardized parameter values are greater than .50. Therefore, all constructs have the validity of unity (Chou, Boldy and Lee, 2002: 52). The results gained in the scope of the research shows that the scale is valid and reliable for the data gathered from the study group.

The repetition of reliability and validity works for women who live in provinces that is not within the scope of this research and the comparison these analyses is very important, especially when taking the factor of construct validity into account. In this context, "Perception Scale on Determinants of Female Participation to the Labor Force" (PSDFPLF) must be used in other researches, and results must be compared to the results of this research. It is possible to use the "Perception Scale on Determinants of Female Participation to the Labor Force" (PSDFPLF) which was developed for this study to determine the reasons behind the workforce participation rates in other demographics.

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