WHY EARN LESS?

Gender-based Factors Affecting the Earnings of Self-Employed Women in Turkey

by

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July 1999

Article to be published by JAI Press in a volume titled **Middle Eastern Women and Work** and edited by the Middle East Economic Association

The opinions expressed in this paper belong to the author and do not represent any institution.

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Abstract

This study, based on the author's Ph.D. dissertation carrying the same title and completed in December 1996, looks into the determinants of earnings differences between men and women among the urban self-employed in Turkey. It argues that in addition to human capital variables, there are *social and institutional factors*, which affect earnings of self-employed men and women. Some of these are *gender-based factors*, affecting women's earnings only. It also emphasizes that the earnings of an individual do not result from free and rational choices. Since women are not really expected to *choose* to concentrate in low-return, labor-intensive tasks, these choices are more likely to be made within the context of uneven economic development and pre-existing gender inequalities. This study attempts to explain the gender-based earnings gap by taking into account the interaction between economic factors and prevailing social and institutional structures such as the links between women's market and non-market work.

The self-employed who are the focus of this study are urban lower middle-class and working-class women and men involved in a set of productive and service activities who would be unable to find employment in the formal markets and must generate their own employment with relatively little access or no access to capital, depending mainly on their labor. This study was based on a comprehensive 1995 survey of 705 women and men entrepreneurs in Turkey collected by the author and a team of researchers. The results show that five gender-based factors -- marital status, ratio of time on non-market work over market work, childcare arrangements, location of business, and working in most-traditional sectors -- were significant for the women's subsets of the data. Being married, having others take care of children while working affected women's earnings positively, as well as having a shop-based business. Ratio of

time spent on non-market work over market work, and working in most-traditional sectors had significantly negative effects on women's earnings, and not men's as predicted by the model.

Outline

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I. Introduction

This study, based on the author's Ph.D. dissertation carrying the same title and completed in December 1996, looks into the determinants of earnings differences between men and women among the urban self-employed in Turkey. It attempts to explain the gender-based earnings gap by taking into account the interaction between economic factors and prevailing social and institutional structures such as the links between women's market and non-market work. The self-employed who are the focus of this study are urban lower middle-class and working-class women and men involved in a set of productive and service activities who would be unable to find employment in the formal markets and must generate their own employment with relatively little access or no access to capital, depending mainly on their labor.

The existing approaches to gender-based earnings gap isolate the market outcomes from their social and institutional contexts by focusing only on individual characteristics. This study argues that in addition to human capital variables, there are social and institutional factors, which affect the earnings of the self-employed. Some of these are gender-based factors, affecting women's earnings only and affecting women more than men. It emphasizes that the earnings of an individual are not necessarily resulting from free and rational choices. Since women are not really expected to *choose* to concentrate in low-return, labor-intensive tasks, these choices are more likely to be made within the context of uneven economic development and gender inequalities.

This study was based on a comprehensive 1995 survey of 705 women and men entrepreneurs in Turkey collected by the author and a team of researchers. Women comprised two-thirds (470) of the surveyed micro and small entrepreneurs. A control group of self-employed men (235) were interviewed as well.

The survey was conducted in seven provinces of Turkey (Mugla, Corum, Denizli, Ankara, Istanbul, Gaziantep, Urfa) which represent varied levels of regional development, degree of urbanization, rate of population growth and occupational opportunities for women and men. Half as many self-employed men (N=235) as women (N=470) were interviewed for the surveys.

Data on women micro and small entrepreneurs are not available on a national scale in Turkey. Labor force surveys include women entrepreneurs' businesses for formal sector businesses only. The most reliable, representative and recent statistics on women entrepreneurs in Turkey are the 1990 census data collected by the State Institute of Statistics (SIS). These data provide the widest coverage of women entrepreneurs because they capture both registered and unregistered businesses since they were collected on a household basis. Women entrepreneurs are classified as self-employed and/or employers[1] in this data set. However size of business or other business characteristics are not included in the data collected. Therefore the latest population census, 1990, provides the sampling base for the selection of districts surveyed in this study.

A stratified random sampling was used in order to identify the women subjects of the survey from the 1990 Population census. The seven provinces were selected from among the provinces, which had the highest percentage of women entrepreneurs according to the census. The selected provinces represent a broad spectrum of the regional differences and economic diversity found in modern Turkey.[2]

II. Approaches on Gender Differences in Earnings

Human capital approach is the most widely accepted neoclassical approach on the determinants of earnings in the labor market. According to the proponents of this approach, education, training and experience embodied in a person -- defined as human capital -- give rise to increased earnings in the labor market (Mincer, 1962; Malkiel and Malkiel, 1973; Oaxaca, 1973; Polachek, 1973; Mincer and Polachek, 1974). These studies ascribe women's lower earnings to their free choice in deciding to make smaller investments in productivity enhancing human capital. According to the human capital approach women choose lives that yield less of certain rewards in the workplace. Mincer (1962) shows that the differential in earnings rate would narrow by 45 percent if the work experience of women were as long as that of men. Mincer and Polachek (1974) emphasize the continuity of experience in the labor market as well as years of experience in determining occupational distribution for both women and men.

On the other hand, labor market discrimination approaches assert that labor market discrimination occurs where different wages are set for workers with the same productivity, but different personal non-economic characteristic such as gender, class, or race. (Arrow, 1971, 1972, 1973; Birdsall and Behrman, 1991) There are two main kinds of gender-based labor market discrimination, both of which result in an earnings gap between women and men *occupational segregation*, where women are distributed among occupations differently from men even after differences in education are accounted for (Beller 1982, 1984) and *earnings discrimination*, where within the same occupations, men earn more than women (Cain, 1986; Blau, 1992).

The crowding model of Barbara Bergmann (1974, 1986) is one some of the labor market-based approaches to gender differences in earnings. In this model occupational segregation by gender occurs

when employers discriminate against women by excluding them from "men's work". The crowding model explains women□s secondary labor force status as a result of the exclusion of women from many occupations and their confinement to a relatively small number of occupations.

The "discriminating tastes" argument, developed by Becker (1957, 1968), is the longest-standing explanation of earnings discrimination despite doubts about its compatibility with competitive markets. The taste-based model of earnings discrimination begins with the assumption that the utility of some or all the relevant agents is affected by association with members of other identifiable groups. The idea behind gender-based taste discrimination is that employers, coworkers and/or customers have a taste for discrimination and prefer to hire, work with and/or be served by men. Finally statistical discrimination (Phelps, 1971) approach sees the source of discrimination in the attempts to preserve their profit advantages. It argues that the labor market discriminates against women and minorities based on perceived differences in costs.

There are some basic shortcomings of both the human capital and the labor market approaches. The emphasis of human capital approach on voluntary choice of women tends to underestimate the extent to which persons confronted by less favorable options because of their gender are likely to be caught up in a circle of unfavorable feedback effects. These feedback effects derive from labor-market discrimination that discourages women from making human capital investments, which in turn weaken their attachment to the labor force. Even relatively small amounts of initial discrimination can generate magnified supply effects that reinforce traditional gender roles in the behavior of employers toward women.

Others argue that the variables, which seem to be unproblematic indicators of productivity to neoclassical economists, are actually based on deeply embedded gender biases in the social and economic institutions of society (England, 1982; England and Farkas, 1986; Wooley, 1993). For instance, skills are socially constructed within a culture where activities done by women are perceived as unskilled. Moreover, the time and labor constraints brought about by women's unpaid work in the care economy are not configured into this approach (Folbre, 1994; Elson, 1995a).

Similarly, labor market discrimination approach fails to address the issue of pre-labor market inequalities, which are part of the larger social, and institutional constraints faced by women. Factors arising from outside the labor market, such as the household, cultural norms and economic environment, are likely to be more important sources of earnings differences between men and women than factors that originate from within the labor market. The interactions between women's market and non-market work are not incorporated into this approach.

This study argues that women's choices are likely to evolve from a dynamic and historical process within a context of social, cultural and institutional inequality by means of informal and formal rules or terms of agreement. Within this context women and men are expected to enter into and participate in the labor market on an unequal basis owing to pre-existing gender related structures and parallel non-market structures which require large amounts of time and labor from women. This study builds on some of the individual factors addressed by the human capital approach, and attempts to link the gender inequality dimensions of the labor market to cultural norms and institutions in the society.

In this study, gender-based differences determining earnings will be understood as stemming from women's lack of control over resources and pre-existing inequalities prior to and outside the labor market. There are institutional (household) and larger economic environmental factors (spatial-sectoral) which define and limit women entrepreneurs' labor market outcomes such as earnings. While employer discrimination is not an issue for self-employed women, they also have to deal with restrictions brought about by community, family and prejudices in the market from colleagues or customers.

III. "Gender-based Factors of Earnings (GBFE)" Model

The human capital earnings theory is widely used for analyzing the determinants of earnings. It has also been applied to developing countries in order to analyze the determinants of women's and men's earnings in the formal and informal labor markets in the recent years. (Birdsall and Sabot, 1991; Psacharapoulas and Tzannatos, 1993)

The GBFE model is an augmentation of the basic human capital model using a modified earnings function. The earnings function is augmented to explore the determinants of a regression of log of earnings on human capital factors, household and spatial-sectoral level variables. The ordinary least squares method is used for this analysis.

In the gender-based factors of earnings model, it is hypothesized that:

- One, in addition to human capital variables, there are social and institutional factors which affect earnings of the self-employed.

- Two, some of these individual, household and spatial-sectoral factors are gender-based factors, meaning that they only affect women's earnings and not men's.

IV. Application of the GBFE Model

a. Pooled Data set

In this section, the GBFE model on earnings of self-employed men and women in Turkey is applied to the pooled data set for all ten factors. The pooled data set consists of 235 cases of women and men entrepreneurs each. All the data in this study are based on the surveys conducted between February - July 1995 in seven provinces of Turkey with 705 self-employed women and men.

The individual factors that are identified as having the most possible effect on earnings of the self-employed are *sex*, *age*, *experience*, *education* and *marital status*. Sex is the main axis of comparison among the self-employed. Exploring the differences between the determinants of women and men entrepreneurs' earnings is the basic purpose of this research. Men's businesses were selected as a control group to explore the differential effects of individual, household and spatial-sectoral factors on the earnings of self-employed women and men. Half as many self-employed men (N=235) as women (N=470) were interviewed for the surveys (see Table 2).

TABLE 2 ABOUT HERE

According to the results of this pooled data set, all the factors of the GBFE model are significant except for sex and child care arrangements (see Table 3). While the insignificance of sex may seem to be a contradictory result, it actually does not contradict the premises of the GBFE model. In this research,

gender as a complex independent variable is deconstructed into its components. Sex is only the biological component of gender. Other components of gender that are addressed by this model are marital status, time spent on non-market work over market work, location of business and occupational distribution. These factors are expected to affect the earnings of women entrepreneurs only or women entrepreneurs more than men do.

TABLE 3 ABOUT HERE

In addition to sex, there are two other individual factors in the GBFE model. One of them, education, has a significantly positive effect on the earnings of the self-employed in the pooled data set. The coefficient of this factor indicates that the more years of education an entrepreneur has, the higher his or her earnings will be. The coefficient is perhaps slightly smaller than would be expected. This is because the occupational distribution variables partly take away from the influence of the education coefficient. However there is no harmful collinearity between the two variables.[3] Being married is the third individual factor in the GBFE model. Its coefficient indicates that it has a significantly positive effect on the earnings of the self-employed in the pooled data set. As many as 87 percent of the entrepreneurs in the data set were married. There is very little difference between women and men entrepreneurs with respect to their marital status, although the effect of marital status is expected to be different for women and men entrepreneurs when the data set is broken down into women and men.

The first household factor in the GBFE model is the ratio of time spent on non-market work over market work. The larger the ratio, the more time entrepreneurs spend on non-market work with respect to market

work. This ratio also signifies a time constraint on market work or the over all availability of time for the entrepreneurs. On average, for every hour spent on market work, entrepreneurs spend 41 minutes on non-market work. The coefficient of this factor is significantly negative in accordance with the predictions of the GBFE model. This result signifies that the more time entrepreneurs spend on non-market work with respect to market work, the lower their earnings will be.

The second household level variable in the model is child care. According to the results of the pooled data set, having other people take care of one's children while working does not impact earnings significantly from taking care of them oneself. As many as 86 percent of the respondents have child care arrangements where other people take care of their kids while they are working. This factor is expected to have a significant positive effect on women entrepreneurs' earnings in the GBFE model for the separate data sets. For men, the effect of this factor is expected to be insignificant.

There are five spatial-sectoral factors in the GBFE model. The first one of these is the regional development factor. Western regions of the country have historically been economically more developed compared with the east. Around 61 percent of the respondents where the interviews were conducted lived in the western provinces. The assumption of the model is that the self-employed would have better access to bigger markets, more capital and better infrastructure in the west of the country compared to the east. As the GBFE model predicted, the coefficient of working in the west of the country is significantly positive on earnings.

The second spatial-sectoral factor is the level of urbanization. Metropolitan areas offer better access to bigger markets, more capital and better infrastructure for the self-employed compared with small cities. As many as 52 percent of the respondents lived in Istanbul and Ankara, the two metropolitan areas in the sample. The coefficient of living in a metropolitan area as opposed to a small city has a significantly positive effect on the earnings of the self-employed in the sample as predicted in the GBFE model.

The third spatial-sectoral variable is the location of business in the home or outside the home. Being a home-based micro entrepreneur puts limits on a microentrepreneurs compared to a shop based small entrepreneur with a permanent/continuous stall or shop. The coefficient of the variable is significantly positive, indicating that the effect of being shop based as opposed to being home based is positive for the pooled data set. The GBFE model predicts that the earnings of women entrepreneurs will be affected positively from working in a shop or a permanent stall compared to working from home in the separate data sets. The effect of this variable on the earnings of men is expected to be insignificant in the separate data set.

The last two factors in the spatial-sectoral factors category address the occupational distribution of the entrepreneurs. The three groups of occupational distribution are determined according to the level of traditionality of skills for women entrepreneurs. The two categories of most traditional (handicrafts, textiles, embroidery, weaving) and non traditional sectors (professional services, retail) are compared with the medium traditional (personal and social services) sector category to determine their relative effect on earnings. The coefficients for the two sectoral factors support the predictions of the GBFE model. Working in most traditional sectors such as textiles and handicrafts has a significant negative

effect on the earnings of self-employed with respect to working in somewhat traditional sectors such as personal and social services, while the effect of working in non traditional sectors such as retail and professional services is significantly positive.

b. Separate Data sets for Women and Men

Next the GBFE model is applied to the separate data sets for self-employed women and men. This breakdown of the data set helps demonstrate the factors that affect women entrepreneurs' earnings different from men's. The expected *gender-based factors* are marital status, ratio of time spent on non-market work over market work, child care arrangements, location of business and working in most traditional sectors. As the data set is split into men and women, the sex factor will not be relevant for this regression analysis.

The results of the two separate regressions on women and men clearly show that the model is a better fit for women than for men (see Table 4). All the variables of the regression are significant for women entrepreneurs in the expected directions. Only four variables are significant for men entrepreneurs. These factors which affect women and men both are education (individual factor), child care arrangements (household factor)[4], the regional development level (spatial-sectoral factor) and working in non-traditional occupations (spatial-sectoral factor).

TABLE 4 ABOUT HERE

The level of urbanization is one factor which was expected to affect both women and men entrepreneurs. Both men and women entrepreneurs are expected to be positively affected from increased access to markets, infrastructure and information in metropolitan areas. However, it is only the earnings of women entrepreneurs that are positively affected from living and working in metropolitan areas. This can be explained by the larger mobility constraints placed on women in smaller town settings. The pressures and expectations of everyday life in a more urban environment require women to get out more and move further away from the household for daily tasks, chores, activities.

All the variables (except child care) support the predictions of the GBFE model. These gender-based factors which only affect women are marital status (individual factor), time spent on non-market work over market work (household factor), location of business (spatial-sectoral factor), and most traditional sectors (spatial-sectoral factor).

In the case of the gender-based factors, being married has a positive effect on women entrepreneurs' incomes through increased public mobility and access to markets and information. The ratio of time spent on non-market work over market work has a negative impact on the earnings of women entrepreneurs. The more time a woman entrepreneur spends on non-market work with respect to market work, the lower her earnings will be. This is an expected result considering the time constraints brought about by the extensive hours of work women have to put in housework and child care.

Having a shop-based business has a positive effect on women's earnings as well since this increases access to information and markets. Working in most traditional sectors, such as textiles and handicrafts, has a negative effect on the earnings of women entrepreneurs compared with working in medium

traditional sectors such as personal and social services since these products and services have limited returns and face intense competition from other women entrepreneurs like themselves.

IV. Summary of Results

Table 3 shows that the individual, household, and spatial-sectoral factors have more explanatory power for women entrepreneurs than for men entrepreneurs. The nine independent variables in the GBFE model have more explanatory power for women entrepreneurs than for men entrepreneurs in this data set. As predicted, the six gender-based factors have significant influence on women entrepreneurs' earnings.

The five gender-based factors -- **marital status, ratio of time on non-market work over market work, childcare arrangements, location of business, and working in most-traditional sectors** -- **were significant for women in the expected directions. Being married, having others take care of children while working and having a shop-based business affected women's earnings positively. Ratio of time spent on non-market work over market work, and working in most-traditional sectors had significantly negative effects on women's earnings, as predicted by the GBFE model. These variables do not have explanatory power for men.**

This study attempted to develop an analytical framework that is based on the human capital and labor market discrimination approaches. The simple earnings function of the human capital approach was used, augmented by other factors. The study was built on some of the individual factors addressed by the human capital approach. It also incorporated social institutions, such as the household and the larger

economic environment as determinants of earnings of self-employed women and men.

It is claimed in this study that events which occur before entering the market, which might be termed socialization or extra-market discrimination -- are likely to be important explanations of the observed earnings differences between men and women. Women entrepreneurs face extra-market discrimination in form of inequalities in accessing markets, public mobility, and time constraints due to the gender division of labor in the household.

Gender is introduced as an intervening variable in all economic activities in the market and outside the market. The human capital and labor market discrimination approaches partially explain the gender-based earnings gap faced by women in the labor force. However, these approaches to determinants of the earnings of women and men de-link the gender inequality dimensions of the market from other aspects and institutions of the economy and society. In this study, gender-based factors determining earnings were understood as stemming from women's lack of control over their resources.

The results of the empirical tests support the GBFE model. The gender-based factors affect women's earnings *only*. These factors are a result of social institutions, cultural norms and macroeconomic environment as well as individual characteristics. They show that pre-existing inequalities between women and men entrepreneurs before coming to the market influence their earnings. Using a framework of individual choice is limited in explaining the links between non-market work and market work. For a better understanding of the factors that affect women entrepreneurs' earnings differently from men's, they need to be put in a *dynamic* and *historical* social context -- rather than static.

Women's mobility surfaces as an important issue in these results through a number of the gender-based factors, such as marital status, location of business and working in metropolitan cities. The public mobility of women depend on constraints on their labor and time put by family and community. The more public mobility women have, the better access they have to markets, information, and communication.

GBFE model shows that increased access to markets and information ameliorates women entrepreneurs' earnings opportunities. Access is determined by the institutional structure of cities and economic development of regions that the entrepreneurs live in. Cultural norms, which define gender-roles also, emerge as important indicators for the earnings of women entrepreneurs in this context. Roles ascribed to women and their place in the household, and the community have important repercussions on their market work, and involvement in income generating activities.

These results clearly show that earnings of women and men entrepreneurs are affected by similar, and different factors. The study is, therefore, instrumental in showing that men are not the norm when identifying determinants of earnings for the self-employed. It is not sufficient to focus on men and develop policy conclusions based on their constraints. The self-employed are not a homogenous group. In addition to gender, there are other differences based on region, location of business, urbanization levels, and type of occupation among the urban lower middle-class and working-class entrepreneurs.

V. Conclusions and Policy Implications

This study argued that events which occur before entering the labor market, and which take place parallel to market work (socialization, non-market work, pre-labor market discrimination) are likely to be important explanations of the observed earnings differences between men and women. Women entrepreneurs face pre-labor market discrimination in form of inequalities in accessing markets, public mobility, time constraints due to the gender division of labor in the household.

The GBFE model predicted that five of the individual, household and spatial-sectoral factors are gender-based factors, which only affect women entrepreneurs earnings or their earnings more than menus. These are: marital status, ratio of time spent on non-market work over market work, child care arrangements, location of business, and working in most traditional sectors.

In conclusion, a major contribution of this study was its attempt to identify gender-based factors that affect the earnings of women entrepreneurs. Urban lower-middle class and working class women entrepreneur's labor market outcomes such as earnings from their market work are shown to be permeated by gender-based factors. These factors were expected to affect women entrepreneurs' earnings only or women entrepreneurs' earnings more than men's. This study identified some of those factors that affect both women and men entrepreneurs, and those factors which only affect women. By focusing on gender-based factors, we are able to identify some of the reasons for women's subordinate labor market outcomes, earnings, in the informal labor markets with respect to men.

The findings from this study have significant policy implications, especially in the areas of poverty reduction and gender equity.

Child Care: Women micro and small entrepreneurs are constrained in terms of their time allocations between market work and non-market work. Their allocations to non-market work, in the form of housework and child care, much higher than those of men. This reflects itself in lower earnings, and in some cases in opting for being home based. An obvious solution would be a more egalitarian sharing of these responsibilities between women and men in the household. Another option would be providing affordable, accessible kinder gardens and day care centers in the neighborhoods where women micro and small entrepreneurs are concentrated in.

For women entrepreneurs government provided child care centers is one affordable option. However, an extensive network of such public child care centers in the neighborhoods of women entrepreneurs could be very costly. Another suitable child care arrangement is that of neighborhood, family operated informal day-care centers. The Directorate General for Social Services and Child Protection Agency (SSCPA), which is currently responsible for all child care centers in Turkey, can provide training, certification, price regulation and inspections to help initiate affordable, efficient and healthy day-care centers in the lower middle class and working class neighborhoods in the urban areas. Such arrangements do not currently exist in Turkey. Community or home day care facilities would also provide business opportunities for women. Credit facilities could also be extended to women in order to establish these community or home day care centers.

Training: There continues to be a literacy and enrollment gap between women and men in Turkey. With increased poverty, the gender gap in education and training also increases. In this study, the gender gap in

education between women and men micro entrepreneurs was much larger than the gap between women and men small entrepreneurs. One result of the gender gap in educational and training indicators is the concentration of women entrepreneurs in most traditional sectors. Providing extended training facilities in the neighborhoods where women entrepreneurs are concentrated in would help improve their skills and earnings opportunities. These skills training arrangements could be provided through a number of state organizations and NGOs in order to help women entrepreneurs enter into more lucrative non traditional sectors such as professional services. The People's Education Centers of the Ministry of Education, Turkish Employment Agency, Municipalities, Association to Support Modern Life are among the organizations that already provide some skills training courses for women.

However, training in Turkey remains to be highly segregated by gender and is a major contributor to the process by which women and men are channeled into different occupations. The existing skills training courses for women by the Directorates General for Girls; Vocational Education and Apprenticeship and Non Formal Education continue to direct women into traditional occupations with limited career prospects. These courses have a limited selection of topics in traditional skills, poor instructional methods, and lack of linkages with product and labor markets. Training programs need to be designed to reverse the current segregation in the formal and informal labor markets. New courses in skills that are demanded in the formal and informal labor markets, such as professional services, enterprise development skills, marketing and product design, could be provided by these agencies. The courses could also provide child care facilities for participating women. A coordination among the separate efforts of the government agencies and NGOs involved in skills training courses would also increase their effectiveness.

Credit: While the data are not conclusive, home based work has become an important form of employment for women in Turkey. The vulnerability of home based workers, by virtue of their isolation, comes out clearly in the results of this study. Increased and facilitated access to credit helps women take their businesses out of the home, make capital investments in their businesses to increase their productivity. In the context of the Turkish financial system, it is not possible for financial intermediaries to be in any institutional form other than banks. Providing NGOs with the legal rights to distribute loans would be a policy decision in the right direction. Public and private bank officials, related governmental and non governmental agency representatives need to be informed about poverty lending and targeting women entrepreneurs capital needs.

There are currently only two government banks, HalkBank and Vakiflar Bankasi, which provide microcredit for women's businesses in Turkey. Only registered home-based businesses qualify for these lines of credit. They are also limited in their scope since they were designed for investing in equipment and machinery not working capital. Their scope needs to be adjusted to include working capital as well as un-registered businesses. In order to reach women micro and small entrepreneurs living in the urban lower middle class and working class neighborhoods, new and extensive credit lines and programs need to be developed.

Some of the qualifications for these programs could be the use of extension agents who visit groups of clients on a regular basis, rather than requiring the clients to come to the institutions' offices; hiring female extension workers to work with women borrowers; having large field staffs who get directly

involved with the women and their businesses; working with groups of women, lending to women clients in groups, rather than as individuals; accepting alternative forms of collateral -- group guarantees and peer-group (not elite) co-signers on loans in lieu of property or real estate; starting off with small loans, very short repayment periods, and frequent (even weekly) repayment schedules, and gradually expanding each of these parameters as the woman client becomes familiar with using credit effectively, demonstrates a commitment to repaying loans, and expands her business so that she is able to use more credit.

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Table 1. Number of Entrepreneurs by Province, Turkey

Province	Women	Men
Istanbul	150	75
Ankara	95	47
Mugla	69	34
Denizli	68	34
Urfa	33	16
Corum	30	15
Gaziantep	25	14
Total	*470*	*235*

Table 2. Estimations of the Gender-Based Factors of Earnings Model

Variable Description	Pooled Data set B Coefficient (Standard Error)	Women B Coefficient (Standard Error)	Men B Coefficient (Standard Error)
Sex--I_1	.068	***.041 *****	***.078 *****
(Individual)	(.076)	***(.007)***	***(.018)***
Education--I_2	***.056 *****	***.041 *****	***.078 *****
(Individual)	***(.009)***	***(.007)***	***(.018)***
Marital Status--I_3	***.139 *****		
(Individual)	***(.119)***		
Non-market over market work--H_1	***-.210 *****		
(Household)	***(.064)***		
Type of Child Care Arrangement--H_2	.064		
(Household)	(.107)		
Urbanization Level--S_1	***.093 *****		
(Spatial-Sectoral)	***(.067)***		
Location of Business--S_2	***.202 *****		
(Spatial-Sectoral)	***(.079)***		
Regional Development--S_3	***.203 *****		
(Spatial-Sectoral)	***(.067)***		
Most Traditional Sectors--S_{41}	***-.153 *****		
(Spatial-Sectoral)	***(.105)***		
Non Traditional Sectors--S_{43}	***.209 *****		
(Spatial-Sectoral)	***(.099)***		
(Constant)	5.902		
	(.204)		

** 95% Significance Level
Adjusted R Square .44
Standard Error .48

Table 4. Estimations of the Gender-Based Factors on Earnings Model for Women and Men

Variables	WOMEN (N = 470) (Standard Error)	MEN (N = 235) (Standard Error)	Variable Group
I_2	***.041 *****	***.078 *****	***Individual***
Education	***(.007)***	***(.018)***	
I_3	***.209 *****	-.291	Individual
Marital status	***(.085)***	(.290)	
H_1	***-.178 *****	.107	Household
Non-market/market work	***(.050)***	(.751)	
H_2	***.214 *****	***.476 *****	***Household***
Type of child care	***(.075)***	***(.517)***	
S_1	***.186 *****	-.040	Spatial-Sectoral
Urbanization level	***(.059)***	(.105)	
S_2	***.298 *****	4.1E-04	Spatial-Sectoral
Location of business	***(.065)***	(.159)	
S_3	***.159 *****	***.275 *****	***Spatial-Sectoral***
Regional development	***(.060)***	***(.104)***	
S_{41}	***-.184 *****	-.033	Spatial-Sectoral
Most traditional sectors	***(.089)***	(.173)	
S_{43}	***.181 *****	.248 **	Spatial-Sectoral
Non-traditional sectors	***(.084)***	(.173)	
(Constant)	5.852	6.322	
	(.136)	(.252)	
** 95% Significance Level			
Adjusted R Square	.51	.38	
Standard Error	.46	.48	

ANNEX 1. FORMULAS

The formula is based on the earnings function, which is shown as follows:

$$\ln (Y_i) = C + (X_i)a + b(F_i) + e_i$$

Level of earnings is determined by a number of characteristics in this semi-log function, where $\ln (Y_i)$ is the logarithm of the earnings of entrepreneurs, C is a constant term, X_i is a vector denoting entrepreneurs' personal characteristics such as age, experience, education and marital status, a is the vector of the estimated coefficients/effects of these characteristics upon earnings, F_i is a (dummy) variable taking the value 1 for a woman and 0 for a man, and e_i refers to unobserved or unmeasurable characteristics.

The dependent variable is the log of net monthly earnings of self-employed women and men (a log distribution is used to correct for the skewed nature of earnings into a normal distribution). However, two groups of factors are added to the *human capital factors (*I_i). These are *household level (*H_i) and *spatial-sectoral level factors* (S_i). The GBFE model consists of running a regression of earnings upon these three groups of factors separately for women and men (see Table 1).

$$\ln (Y_i) =\bullet [(I_1, I_2, I_3), (H_1, H_2), (S_1, S_2, S_3, S_4)], \text{ where}$$

$I_i = \mathbf{g} (I_1, I_2, I_3)$ *individual* characteristics vector consisting of sex (I_1), education (I_2), and marital status (I_3).

$H_i = \mathbf{g} (H_1, H_2)$ *household* characteristics vector consisting of ratio of time spent on non-market work over market work (H_1) and child care arrangements (H_2).

$S_i = \mathbf{g} (S_1, S_2, S_3, S_4)$ *spatial-sectoral* characteristics vector consisting of level of urbanization (S_1), location of business (S_2), regional differences (S_3) and types of occupations (S_4).

Expected Results of the Gender-Based Factors of Earnings (Y_i) Model *

Variable	Description	Hypothesis (women & men)	
		Women	Men
I_1	Sex: Men = 0, Women = 1	(Used in the pooled data set only)	
I_2	Years of formal education	$dY_i / dI_2 > 0$	
I_3	Marital status; Single = 0, Married = 1	$dY_i / dI_3 > 0$	no effect
H_1	Ratio of time spent on non-market work over market work	$dY_i / dH_1 < 0$	no effect
H_2	Child care arrangements; entrepreneur takes care of children while working = 0, others take care of children when working = 1.	$dY_i / dH_2 > 0$	no effect
S_1	Level of urbanization; metropolitan cities = 1, small cities = 0.	$dY_i / dS_1 > 0$	
S_2	Location of business; home based micro-business = 0, shop based small business = 1.	$dY_i / dS_2 > 0$	no effect
S_3	Regional economic development; west = 1, east = 0.	$dY_i / dS_3 > 0$	
S_{41}	Most traditional occupations such as textiles, handicrafts, food production and B&B places.	$dY_i / dS_{41} < 0$	no effect
S_{43}	Non-traditional occupations (translators, travel office owners and real estate dealers.	$dY_i / dS_{43} > 0$	

* The five variables that are shaded gray in this table (S_{41}, S_2, H_2, H_1, I_3) are the gender-based factors, which are expected to affect women entrepreneurs only or more women entrepreneurs than men entrepreneurs.

ENDNOTES

[1] The two definitions of ownership for women's businesses used by SIS are: (1) Employer: A person who has one or more employees working for him/her for pay in his/her work place. (2) Self-Employed: A person who works in his/her own business (land, garden, shop, office, workshop, atelier, etc.) alone or with family members who do not get paid and having no paid employees, in order to gain money, goods or income.

[2] Urfa and Gaziantep from the economically less developed Southeast; Corum from the largely agricultural Central Anatolia; Mugla and Denizli which are the tourist and cottage industry areas of Southwest; Istanbul, the trade and business capital of the country located on a vast area of land on Asia and Europe; and finally Ankara, the second largest metropolitan city and the capital of the country located in Central Anatolia.

[3] A difference of means tests showed significant differences in means of women and men on a few variables (location of business, ratio of time spent on non-market work over market work, child care arrangements). Therefore the model was run on separate data sets. The pooled data set was also adjusted to include equal number of men and women (half of the women selected randomly). Results of collinearity tests show that the highest level of collinearity was among the child care and marital status variables (.64). Anything less than .80 or .90 is considered unharmful collinearity. The largest eigen value was 6.76. Any eigen value between 5-10 is considered weak collinearity, while values of 10-30 signify moderate collinearity. The variance inflation factor VIF was 1.0 to 3.0 in my tests on the sample (only VIFs > 10 indicate harmful collinearity).

[4]. There is one unexpected result for men entrepreneurs where the child care variable is significant. The effect of an entrepreneur having someone else take care of his kid was expected to be insignificant for men entrepreneurs while the results show that it is positively significant. This variable was expected to be insignificant for men because it was assumed that having someone else take care of their children while working would be the norm for men with very little likelihood of them taking care of the children themselves while working. One interpretation of the positive effect of having children being taken care of others while working might be the labor of other adults freed up in the household to provide further support to their businesses. However, this assumption would need to be backed up by further data regarding who the caretaker actually is if not the self-employed him or herself.