Interdistrict and Interprovincial Differentials in Correlates of Female Labour Force Participation, 1961

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This paper is an attempt at analysing female labour force participation and its various socio-economic and demographic correlates in Pakistan. Data for the four provinces have been analysed separately in order to get an idea of the diversity between regions and to identify characteristics that influence female work participation in different parts of the country.

The area relating to the size and structure of female labour force has received considerable attention in recent years in Pakistan. A preliminary attempt, using 1961 Census data, was made by Bhatti and Alam [1] at identifying the significant correlates of female work in Pakistan. Yusuf [20] analysed correlttes of male participation in labour force by using data from the 1961 Census. Constraints and cultural definitions relating to types of female work were discussed by Papanek [15], Pastner [14] and Shah [18]. Saeed [17] analysed the factors important in female participation in farm operations, and differentiated between work participation by women belonging to various castes in four villages in Lyallpur. A case study of women's attitudes, environment and activities has recently been made by Khan and Bilquees [4] for a Punjabi Village. Shah [19] analysed from survey data the demographic and socio-economic influences on female labour force participation in the rural and urban areas of Pakistan.

Data and Methodology

It was identified in the paper by Shah [19] that socio-economic factors like observance of *purdah*, ownership of land and husband's education were

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very highly related with wife's participation in the labour force. Demographic factors like age of wife and duration of marriage were found to be significant explanatory variables related with wife's work participation. The data were, however, restricted to a national sample of currently married women. The present analysis uses data from the 1961 Census and deals with all women age 10 years and over in the labour force who were working for profit or earning wages or salary, or were helping any member of their family.[1]

The main objective of the present study is to analyse the effect of selected demographic and socio-economic variables on female activity rates in the country. This has been done for three levels: (1) Data for the 45 'settled' districts of Pakistan have been analysed and inter-district comparisons made;[2] (2) Each of the provinces, except NWFP, have been analysed and compared with each other;[3] (3) The effect of various factors on female activity rates in metropolitan areas of Pakistan has been analysed by looking at the twelve largest cities having a population of 100,000 or more.

Two aspects of female employment have been examined, (i) participation in any activity; (ii) participation in non-agricultural pursuits. A few of the reasons for distinguishing between these two types of activities are that some of the factors might be acting as constraints only in non-agricultural kind of activities where the nature of work might be such that it necessitates long absence from the house. Also, the socio-economic status of women engaged in non-agricultural work, particularly in the metropolitan areas, might be quite different from women engaged largely in agricultural pursuits. This difference in itself might be an important intervening factor in determining whether a woman takes part in the labour force or not both because the socio-economic status is related with social permissibility regarding women's work and because membership in a given status group might effect women's motivation to work.

As mentioned above various demographic and socio-economic variables were examined for each of the 45 districts to serve as independent variables in explaining female work participation. The mean value and range for each of these variables is presented in Table 1. Out of all the variables examined, the following were selected for the correlation and regression analysis for the 45 districts and the provinces:—

(1) Percentage of nuclear families.
(2) Child woman ratio.
(3) Dependency ratio.
(4) Percentage of ever-married females.
(5) Density of population.
(6) Percentage of literate females.

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[1]The analysis in the present study can be extended to a more recent time when data from the HED survey (1972) becomes available in order to see the trends in female labour force participation.

[2]Tribal areas have been excluded from the analysis mainly because data on all the variables included in the study were not available in a consistent fashion for the tribal areas.

[3]NWFP was excluded from the regression analysis because the number of variables (6,7) that were selected as predictors was larger than the number of districts (6) in the province. Dropping any of the predictors from the analysis of NWFP data would have resulted in a high specification error.

(7) Percentage of non-migrant females was used as an explanatory variable only for participation in non-agricultural activities.

The explanatory variables used for the analysis of cities were as follows:

(1) Dependancy ratio.
(2) Percentage of ever-married females.
(3) Child-woman ratio.
(4) Percentage of women with one or more grades of schooling.

The reason for omitting the other three variables from the analysis of cities was largely because of the non-availability of data in a suitable form for all the twelve (largest) cities used for the analysis. The female literacy variable was modified slightly for the analysis of cities. Since formal schooling is both more easily available and has a greater demand in cities, it was felt that we could use a more precise definition rather than just restricting ourselves to literate women as was done for the over-all analysis.

Definitions of the various predictors as given by the 1961 Census and used in the present study are given in the footnotes of various tables.

The effect of selected variables on female work participation was analysed for the 45 districts as a whole and for each of the provinces in the country, except NWFP. Simple, one-to-one relationship between each of the predictors and female work participation was examined by looking at the Pearsonian Product moment correlation coefficients.[4] The 'net' effect of each of the predictors was estimated by calculating partial correlation coefficients, that is, the relationship of each predictor with the dependent variable was examined after controlling for or 'partialling out' the effects of all *other* independent variables. Estimates of the total variance explained (R^2) by all the predictors were also made for the districts as well as each of the provinces and the metropolitan areas. In addition to the correlation results, the regression coefficients and the corresponding statistics are shown in Tables 3 and 4 for participation in total labour force and non-agricultural labour force for the 45 districts and the provinces.

It must be recognized that not all the districts used for the analysis were of the same size. Therefore, giving due importance to the possibility of heteroscedasticity (unequal variances) in the data the technique of weighted least squares rather than ordinary least squares was used. The square root of the number of women age ten or more in various districts was used as the weight for the present analysis.[5] Also, the sample for the total Pakistan was sub-divided on the basis of size into small and large districts in order to explore the stability of results.

[4]The correlation coefficients are based on aggregate data and the reader must be cautioned about the limitations of translating these results into individual behaviour. For details see Robinson [16]

[5]This has the effect of weighting the moment matrix from which the correlations and regression coefficients are calculated by the denominator of the dependant variable (the population of women age 10+).

Expected Relationship

Residence in nuclear families can be postulated to have a negative effect on female work participation, particularly if the house hold has young children and if there are no alternate arrangements for child care when the mother is at work. Many of the jobs in Pakistan are, however, of a nature that either the small children can be taken to work or the mother can bring the work home. Furthermore, neighbours or relatives living close by can look after the children in many cases, specially in the rural areas. It has been found in other studies in Pakistan that family size is notably larger in nuclear than in non-nuclear families [3]. Given this set-up, it can be hypothesized that residence in nuclear families would be positively related with female work participation because of the relatively greater pressure on family resources. The former constraint namely lack of child care services, might over ride the latter argument with regard to wife's propensity to work in order to support a large family.

Since child-woman ratio gives an indication of the proportion of children younger than five years in the household, it is hypothesized for the present study that the effect of this variable on work participation would be negative. Households which have a relatively large number of young children to be looked after would leave the wife with little time to engage in activities other than the housework.

Dependency ratio could be hypothesized to have a positive effect on female work participation as households with a high dependency ratio would theoretically place a greater strain on the family income and resources.[6] In some house holds having high dependency ratios, the older people might provide certain child-care services and thus leave the wife with more time to work on activities other then house work.

The proportion of women who can be classified as ever-married was found to be positively associated with work participation in an earlier study Shah [19]. It was argued that a married woman, particularly if she is of a relatively mature age, has greater social permissibility to move around in the community and would therefore have a greater theoretical chance to work.

It is not unreasonable to assume that density of a place would be positively associated with industrialization (and urban concentration) and would therefore provide greater job opportunities to women, particularly in the non-agricultural sector. Density of a district was therefore hypothesized to be positively associated with work participation especially in the non-agricultural sector.

The effect of female literacy on work participation was found to be negative in Shah's earlier study, particularly in the rural areas. It was argued there that since the literate women belong to the relatively higher socio-economic groups, the probability of work participation among these women is smaller. This is expected to be true for a bulk of the women excluding the relatively well-educated women in urban areas.

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[6]It might however be noted, that the definition of dependancy in the present paper might not be totally realistic as some of the persons belonging to the age group less than 10 and 60 and over might be making a marginal contribution to productivity. If this is the case then pressure on the wife to work might be relatively small.

It has been found in various studies that persons from migrant households have a greater propensity to improve their living.[7] It was hypothesized on the basis of this assumption that districts which had a higher proportion of migrants would have greater female work participation as women might take an equal part in this self-improvement process.

Although most of the hypothesized relationships in this section have been stated as representing simple one-to-one correspondence, it is recognised that there might be significant interactions among the various predictors. Also, some of the variables might have joint effects on the dependent variable, namely labour force participation.

Findings

Work Participation in Districts and Provinces

Table 1 provides a summary of selected socio-economic and demographic characteristics pertaining to the 45 districts and also shows the inter-provincial differentials of these characteristics.

It might be recalled that the definition of labour force used in 1961 Population Census consists of all persons of age ten and over working (or looking for work) for profit, wages or salary or helping as unpaid family workers any member of the family in agriculture, trade or profession. The reference period for non-agricultural labour force participation was one week prior to the enumeration while for agricultural work there was no reference period. One of the problems encountered in analysing the labour force data is due to the vagueness in the definition of agricultural labour force. This in some instances has resulted in mis-interpretation both by the respondents and the enumerators [5].

Nine percent of the females age 10 and over were reported to be in the labour force in 1961. The inter-provincial differentials in work participation were very striking, Baluchistan had only 3 percent of its females in the labour force compared to 12 percent in Sind. Both NWFP and Punjab had 9 percent of their women in the labour force. As far as participation in non-agricultural activities is concerned, Punjab had the highest rate (3.03%) while Baluchistan again had the lowest (1.63%).

Distribution of work participation rates in the districts within each province is presented in Table 2. Before discussing these differentials it must be emphasized that due to a general impreciseness in the definition of labour force participation, sufficiently marked differences were observed, particularly in some districts of Sind (Jacobabad, Larkana), Punjab (Campbellpur and D.G. Khan) and NWFP (Kohat). These variations resulted mainly due to the wrong interpretation of the concept of "unpaid family workers" by the enumerators [5]. It is perhaps because of this definitional problem that we observe glaring deviations in work participation rates only for total labour

[7] One of the problems in using life-time migration as an indicator is that we do not know the timing of migration for different migrants. The stated expectation might vary by the duration, since when a person moved into a district.

Table 1

Selected Socio-Economic and Demographic Characteristics for the 45 'Settled' Districts and Provinces, 1961

Selected Characteristics	Pakistan	Range				NWFP	Punjab	Sind	Baluchistan
		Highest		Lowest					
1. Percentage of females in labour force	9.27	41.94	Jacobabad	0.29	Chagai	9.19	8.74	11.84	3.14
2. Percentage of females in non-agricultural labour force	2.74	5.85	Gujrat	0.22	Zhob and Chagai	1.80	3.03	2.45	1.63
3. Percentage of males in non-agricultural labour force.	33.70	76.23	Karachi	11.92	Kharan	27.40	33.50	38.16	26.59
4. Percentage of literate females (a)	8.22	33.63	Karachi	0.46	Kharan	3.74	8.17	11.36	3.07
5. Percentage of literate males	26.90	50.30	Rawalpindi	6.52	Lasbela	24.40	26.90	40.10	5.60
6. Percentage of ever-married women(b)	80.47	89.01	Kalat	71.92	Quetta	99.28	77.35	80.38	83.72
7. Percentage of nuclear families (c)	52.34	71.18	Mekran	39.91	Larkana	53.51	53.27	48.31	54.98
8. Dependency ratio (d)	69.86	78.04	Hazara	52.07	Karachi	72.33	66.48	61.28	64.86
9. Percentage of the population <10 years	32.80	38.66	Kharan	27.66	Dadu	35.20	32.70	31.40	34.90
10. Percentage of the population age 60 years and over	6.90	8.71	Jhelum	3.44	Zhob	6.70	7.20	6.60	4.40
11. Child women ratio (e)	855.05	1072.00	Chagai	721.00	Sialkot	938.72	842.08	851.26	877.05
12. Density of the population (f)	138.22	1506.00	Karachi	2.00	Chagai & Kharan	250.29	321.61	144.84	9.40
13. Percentage of migrant females (g)	22.71	54.50	Karachi	0.82	Mekran	24.57	22.79	23.66	6.82

(*a*) A person was considered literate if he/she could read with understanding any statement in any language. People able to read only without being able to write were also included in the category of literates.

(*b*) $\frac{\text{Total ever married women age 10+}}{\text{Total population of women age 10+}} \times 100$

(*c*) A nuclear family is defined as (1) husband and wife without sons or daughters only (2) husband and/or wife with own sons and/or daughters only.

(*d*) $\frac{\text{Total persons age (0-9) and 60+}}{\text{Total persons age 10-59}} \times 100$

(*e*) $\frac{\text{Total children age 0-4}}{\text{Total women age 15-44}} \times 1000$

(*f*) Average number of persons per square mile.

(*g*) People who were enumerated in any district other than their district of birth were considered as migrants.

Table 2

Inter District and Inter Provincial Variation in Female Labour Force Participation, Total and Non-Agricultural Activities, 1961

	Percentage of Females in Labour Force		Percentage of Females in Non-agricultural Labour Force
N.W.F.P.	**9.19**		**1.80**
1. Kohat	22.64	D.I. Khan	2.67
2. Hazara	17.15	Kohat	2.42
3. D.I. Khan	8.48	Peshawar	2.41
4. Bannu	4.72	Hazara	1.29
5. Peshawar	3.53	Mardan	1.27
6. Mardan	2.56	Bannu	1.12
Punjab	**8.74**		**3.03**
1. Campbellpur	25.17	Gujrat	5.85
2. D.G. Khan	20.02	Campbellpur	5.75
3. Rahim Yar Khan	16.94	Muzaffargarh	4.07
4. Rawalpindi	12.82	Multan	4.04
5. Gujrat	12.30	Rawalpindi	3.99
6. Muzaffargarh	11.66	D.G. Khan	3.72
7. Sargodha	11.63	Sargodha	3.71
8. Jhelum	10.37	Jhang	2.96
9. Bahawalpur	9.98	Lyallpur	2.87
10. Mianwali	9.87	Gujranwala	2.81
11. Multan	8.82	Sahiwal	2.71
12. Bahwalnagar	7.71	Jhelum	2.70
13. Jhang	6.68	Mianwali	2.27
14. Sahiwal	6.21	Lahore	2.00
15. Lyallpur	5.96	Bahawalpur	1.95
16. Sheikhupura	3.80	Bahawalnagar	1.81
17. Gujranwala	3.68	Rahim Yar Khan	1.59
18. Lahore	3.63	Sialkot	1.51
19. Sialkot	3.35	Sheikhupura	1.35

—Continued

Table 2—*Continued*

Sind	**11.84**		**2.45**
1. Jacobabad	41.94	Karachi	4.59
2. Larkana	26.92	Sanghar	2.14
3. Tharparker	21.65	Jacobabad	2.06
4. Sukkur	12.54	Khairpur	2.05
5. Khairpur	10.67	Hyderabad	2.02
6. Sanghar	10.63	Dadu	1.82
7. Dadu	7.38	Thatta	1.78
8. Nawabshah	7.32	Larkana	1.66
9. Thatta	6.17	Sukkur	1.57
10. Karachi	4.72	Tharparker	1.56
11. Hyderabad	4.01	Nawabshah	1.45
Baluchistan	**3.14**		**1.63**
1. Lasbela	5.19	Lasbela	3.62
2. Mekran	4.69	Mekran	3.44
3. Kalat	3.96	Kalat	1.68
4. Zhob	3.89	Kharan	1.48
5. Sibi	3.28	Quetta	1.48
6. Kharan	2.77	Sibi	0.49
7. Quetta	1.53	Loralai	0.40
8. Loralai	0.68	Zhob	0.22
9. Chagai	0.29	Chagai	0.22

force. The distribution of work participation in non-agricultural activities is relatively much more homogeneous for the various districts. In terms of the inter-provincial variations, one of the most striking things about the province of Sind was that district Jacobabad had a female work participation rate of 42% which is about four times greater than the average for the country. Two other districts in Sind, namely Larkana and Tharparkar had rates (27% and 22%) more than twice the average participation rate. Besides reporting errors, more of the women-folk in these districts probably help their husbands in cultivation-related activities as noted in the district census reports [11, 12, 13].

Within NWFP, Kohat and Hazara had notably high work participation rates, 23% and 17% respectively. Part of the reason for this could be that most of the land holdings in Kohat are very small and are largely self-cultivated. Higher proportions of women might therefore be involved in cultivation activities along with their husbands. District Hazara has many orchards which might be a part of the reason for higher female activity there.

In the province of Punjab, Campbellpur and Dera Ghazi Khan had unusually high participation rates, 25% and 20% respectively. Participation in non-agricultural activities was very high for districts Gujrat and Campbellpur (5.9% and 5.8% respectively) in Punjab and for district Karachi (4.6%) in Sind. The presence of many cottage industries in Gujrat could be a reason for higher female work participation there. District Karachi being largely urban and having the biggest metropolitan centre probably offers many jobs in the non-agricultural sector, hence it has higher participation rate. Further analysis of female work participation in large urban areas is contained in a latter section of the paper.

An Overview of Demographic and Socio-economic Factors Related with Work Participation

The following section presents a brief review of the Demographic and Socio-economic variables used for the present study.

Literacy rates were fairly low in 1961 both for males and females (23% and 6% respectively) and for the country as a whole. The percentage of men and women with ten or more grades of education was particularly small (3% and 0.4%) Rawalpindi district had the largest proportion of literate males while Lasbela district had the lowest. About one-third of Karachi's females were literate while Kharan had only half a percent of literate females. Literacy and level of education have been found to act as constraints both in the females propensity to work and the types of jobs that are available/desirable for educated females. About 80 percent of the women age 10 and over were reported to have been ever married for the country as a whole. The proportion of ever married women was highest in NWFP (99%) and lowest in the province of Punjab (67%). Membership in nuclear families has been theorized to constitute one of the constraints in women's work, especially where the family has young children. A little more than half (52%) of the families were categorized as nuclear in 1961. Table 1 shows that there were roughly seventy dependents per 100 working persons in Pakistan. The dependency ratio was highest in NWFP (72) and lowest in Sind (61). These differentials could have important

implications for female work participation in different provinces. The child-woman ratio was reported to be 855 for Pakistan. NWFP had the highest child-woman ratio of 939 compared to Punjab which had the lowest ratio of 842 children in ages 0-4 per 1000 women in ages 15-44. The overall density of persons per square mile was 138 in 1961 in Pakistan. Baluchistan had a very low density of only 9.4 compared to a very high density of 322 persons in Punjab. As far as migration is concerned, seventy-seven percent of Pakistan's population was living in their districts of birth. Baluchistan had an exceptionally low proportion of migrant females i.e. 93% of Baluchistan's females were living in their district of the birth in 1961. For the rest of the provinces the proportion was fairly similar to that of the total Pakistan.

In the next section we concentrate on analysing the relationship between each of the predictors discussed above and female participation in the labour force.

Correlates of Female Participation-Correlation and Regression Results

Table 3 presents the findings of the relationship between selected predictors and female work participation as measured by various correlation and regression statistics. The data are ranked according to the value of the partial correlation, p. The six variables, taken together, explained 48 percent of the variance in female work participation in the districts. Percentage of families living in nuclear arrangements and the density of the district had the largest net (negative) correlations with work participation ($p = 0.38$).[8] It is possible that work participation was lower in nuclear families because of the absence of other relatives who could look after the children while the mother was away at work.[9] Additional support to this hypothesis can be found in the net positive relationship between dependency ratio and the women's work participation.[10] This latter relationship implies that if there are older people living in the household, in addition to young children, the wife probably has a greater opportunity/time to take part in activities besides the house work. A possible policy implication of these findings could be that more women residing in nuclear families would be able/willing to work if day care arrangements for their children could be made available.

We expected a positive relationship between density of a district and the work participation of its women, particularly in the non-agricultural sector. Table 3 shows that density had a noticeable negative effect on work contrary

[8]All the variables in this regression had a statistically significant relationship with work participation at the 10% level, using a one tailed test. This finding can, however, not be over-emphasized since we cannot make unambiguous predictions about the relationship between some of our indepenuent variables and participation in the labour force.

[9]This hunch is supported partially by the negative association between child-women ratio and work participation.

[10]It might be recalled that dependancy ratio in the present study has been defined as the ratio of persons aged less than 10 and 60 or more to persons aged 10-59. Child woman ratio has been defined as the ratio of children age 0-4 to women of age 15-44. Given these definitions, the results seem to indicate that the presence of young children constitutes a constraint in wife's work participation. However, if child-care services in the form of older members in the household are available than the wife's propensity to work is higher. Other relatives (or the older members) would not be present in a nuclear household. Child care services provided by such relatives would therefore be absent in nuclear households and this might discourage the wife's participation in the labour force.

Table 3

Regression and Correlation Results for Work Participation in Total Labour Force, in Pakistan (45 Districts) and Provinces, 1961

Explanatory Variable	p	r	Metric B	Standardized B	t
Pakistan					
Percentage of nuclear families	—0.377**	0.291*	—0.500421	—1.4870	2.51**
Density	—0.331**	0.015	—0.011821	—0.7923	2.16**
Percentage of literate females	0.294*	0.040	0.560251	0.6716	1.90*
Dependency ratio	0.275*	0.415***	0.583568	2.0474	1.76*
Percentage of ever-married females	0.221	0.419***	0.280894	1.1309	1.39
Child women ratio	—0.216	0.374**	—0.025656	—1.1447	1.36
	R^2 =0.479		F = 5.82		
Sind					
Density	0.509	—0.155	0.086867	5.8449	1.18
Percentage of literate females	—0.435	—0.195	—3.788129	—5.6072	0.96
Child women ratio	—0.258	—0.054	—0.142702	—3.0474	0.53
Percentage of ever-married females	0.139	0.048	0.604599	1.1427	0.28
Dependency ratio	0.110	0.058	1.218803	1.5957	0.22
Percentage of nuclear families	0.057	—0.158	0.119175	0.1878	0.10
	R^2 = 0.470		F = 0.59		

—*Continued*

Table 3—*Continued*

Explanatory Variable	p	r	Metric B	Standardized B	t
Punjab					
Density	—0.484*	—0.335	—0.017300	—1.4645	1.92*
Percentage of ever-married females	0.317	—0.041	0.646397	2.3785	1.16
Percentage of literate females	0.297	—0.287	0.541325	0.6641	1.08
Percentage of nuclear families	—0.288	—0.174	—0.325248	—0.9348	1.04
Child women ratio	—0.146	—0.050	—0.014498	—0.6290	0.51
Dependency ratio	—0.016	—0.035	—0.043469	—0.1374	0.00
	R^2 = 0.402		F = 1.34		
Baluchistan					
Percentage of nuclear families	0.357	0.707***	0.110267	1.0673	0.54
Percentage of ever-married females	0.313	0.731**	0.131465	2.0334	0.47
Percentage of literate females	—0.235	—0.080	—1.129425	—2.6532	0.35
Dependency ratio	—0.221	0.723**	—0.313239	—3.2960	0.32
Density	0.198	0.046	0.182792	1.9777	0.28
Child women ratio	0.126	0.579*	0.006893	0.9885	0.17
	R^2 = 0.734		F = 0.92		

p = Partial correlation coefficient.
r = Simple or pearsonian product-moment correlation coefficient.
Metric B = Partial regression coefficient expressed in terms of the original units of measurement.
Standardized B = Standardized partial regression coefficient.
* Significant at .10 level
** Significant at .05 level
*** Significant at .01 level

to our expectation. Given the definitional ambiguity of female labour force participation particularly in the rural sector this finding might simply be an artifact of the definitions. Because of the vagueness of the difinition many more women in rural than in urban areas were included in the labour force. Since rural areas had a low density but a high participation rate, the negative relationship between these two variables cannot be considered surprising.

The net effect of the proportion of literate females on work participation was positive. Similarly, the relationship between proportion of ever-married females and work participation was positive. This latter finding supports the earlier work showing a higher activity rate for married women.

In terms of the quantitative impact of the selected predictors on female work participation, dependency ratio had the largest (positive) influence on participation as shown by the standardized beta coefficients (column 4, Table 3). Percentage of nuclear families had the next highest (negative) effect on labour force participation followed by child-women ratio. These findings lend further support to our earlier arguments about the constraints that nuclear family living seems to put on the wife's time and how the presence of older members in the households can alleviate some of these constraints.

As for the policy implications of our analysis, the only variable in our model that could be directly influenced by government policy was female literacy. This variable ranked last in terms of its quantitative influence on female work. This means that female literacy had the least predictive ability in relation to female labour force participation. Thus, barring other external changes in the work environment, like government intervention aimed at creating more jobs for instance, the change in female labour force participation is likely to be a fairly slow process, as suggested by our analysis. Family structure which appears to have the greatest amount of influence on female work participation usually takes a long time to change and can be influenced by government policies only indirectly.

As pointed above, the sample was subdivided into small and large districts in order to explore the stability of results, after controlling for the district size. Analysis of the data for the nine largest and thirty-six smallest districts showed that the direction of relationship between the six predictors and the dependent variable remained unaltered.[11] [See Appendix Tables 1 and 2]. One interesting finding that emerged from the division of the sample was that the net (positive) effect of percentage of literate females was noticeably stronger for the nine largest districts ($p=0.419$) compared to the smaller districts ($p=0.036$). The correlation for all the districts taken together was 0.294. This indicates that the nature of jobs in the larger and relatively more urban districts was more conducive to and required educated women. Most jobs in the non-agricultural sector were present in the larger districts and these jobs required educated females. The reader, however must be cautioned that the results for the nine largest districts were not statistically significant and therefore need extremely careful interpretation.

[11]The nine largest districts were Lyallpur, Multan, Lahore, Sahiwal, Karachi, Sialkot, Sargodha, Gujrat and Gujranwala.

The importance of female education for participation in non-agricultural activities is further indicated in Table 4 which shows that percentage of literate females in a district had the largest net effect on their participation in non-agricultural activities. The only other variable which had a noticeable (negative) effect on female work in the non-agricultural sector was percentage of migrant females in a district. This finding is contrary to the relationship hypothesized above. Geographic mobility did not lead to higher activity in non-agricultural labour force, as expected by us. One probable reason for this unexpected finding could be that it was relatively easier for the non-migrant women to find work particularly as *ayahs*, cooks, and tailors because they were more well known and established in the community. The rest of the predictors did not have a significant net effect on female work participation in non-agricultural activities, and therefore do not need to be discussed further.

Province-wise Differentials

Besides the data for total Pakistan (45 districts), Tables 3 and 4 provide correlation and regression results for each of the three provinces analysed. In general, almost none of the relationships between the independent variables and female work participation (in total as well as non-agricultural) were statistically significant at the province level. This lack of association indicates that the data do not offer any evidence of a systematic relationship between the predictors and the dependent variable within each province.

Findings for Twelve Largest Cities

The four predictors used for the analysis of the twelve largest cities in Pakistan explained a relatively large amount of variance (84%) in women's participation in non-agricultural activities (Table 5). None of the t statistics relating to the association between the four predictors and work participation were, however, significant at the five percent level. Dependency ratio had the largest net (negative) effect on work participation in the cities. It is possible that some of the dependant persons might be economically active thus reducing the necessity for the wife to take part in the labour force, as argued above. The positive relationship between ever-married females and work participation followed the hypothesized direction while the positive association between child-women ratio and work was contrary to the hypothesis. The insignificant t values for these predictors, however, warrant no further discussion of the relationships.

In general, it might be concluded that the regression and correlation statistics used for the present analysis showed significant results only for total Pakistan. The province-level findings were mostly insignificant. The results for Pakistan generally followed the hypothesized direction. Division of the sample into large and small districts did not alter the direction of these relationships substantially.

Summary and Discussion

Data from the 1961 census on female labour force participation and its selected correlates was analysed for the 45 settled districts and the four provinces. Analysis of the 12 largest cities was also attempted. Nine percent of the

Table 4

Regression and Correlation Results for Work Participation in Non-Agricultural Labour Force in Pakistan (45 Districts) and Provinces, 1961

Explanatory Variable	p	r	Metric B	Standardized B	t
Pakistan					
Percentage of literate females	0.263*	0.618***	0.101920	0.4776	1.66
Percentage of migrant females	—0.234	—0.739***	—0.031797	—0.4693	1.47
Density	—0.122	0.641***	—0.000857	—0.2240	0.75
Percentage of nuclear families	0.095	0.772***	0.024177	0.2808	0.58
Percentage of ever-married females	—0.017	0.768***	—0.005091	—0.0801	0.10
Dependency ratio	0.009	0.735***	0.003629	0.0498	0.00
Child women ratio	—0.007	0.738***	—0.000192	—0.0336	0.00
	R^2 = 0.666		F = 10.53		
Punjab					
Percentage of migrant females	—0.530*	—0.754***	—0.078278	—0.7911	2.08*
Percentage of ever-married females	0.283	0.537**	0.150375	1.7399	0.98
Density	—0.259	0.264	—0.002156	—0.5739	0.89
Dependency ratio	—0.208	0.504**	—0.138139	—1.3727	0.71
Child women ratio	—0.015	0.448**	—0.000408	—0.0556	0.00
Percentage of nuclear families	0.013	0.459**	0.003233	0.0292	0.00
Percentage of literate females	—0.007	0.192	—0.002871	—0.0111	0.00
	R^2 = 0.674		F = 3.25		

—Continued

Table 4—*Continued*

Explanatory Variable	p	r	Metric B	Standardized B	t
Sind					
Child women ratio	—0.610	0.815***	—0.009047	—1.1243	1.33
Dependency ratio	0.553	0.676**	0.161243	1.2285	1.15
Percentage of nuclear families	0.513	0.883***	0.027191	0.2493	1.03
Percentage of literate females	0.411	0.990***	0.077959	0.6715	0.78
Density	0.360	0.987***	0.001256	0.4918	0.67
Percentage of ever-married females	0.307	0.764***	—0.034636	—0.3809	0.57
Percentage of migrant females	0.264	—0.036	0.009104	0.0727	0.47
	R^2 = 0.991		F = 49.23		
Baluchistan					
Percentage of nuclear families	0.679	0.720**	0.160090	2.2855	0.92
Density	—0.557	0.273	0.387983	6.1910	0.67
Percentage of literate females	—0.529	0.170	—1.832444	—6.3489	0.62
Percentage of ever-married females	—0.434	0.605*	—0.144781	—3.3028	0.48
Percentage of migrant females	—0.291	—0.609*	—0.063115	—1.5958	0.30
Child women ratio	0.118	0.591*	0.003876	0.8199	0.10
Dependency ratio	—0.111	0.645**	—0.092688	—1.4384	0.10
	R^2 = 0.793		F = 0.55		

*Significant at .10 level
**Significant at .05 level
***Significant at .01 level

Table 5

Regression and Correlation Results for Work Participation in Non-Agricultural Labour Force in Twelve Largest Cities of Pakistan, 1961

Explanatory Variable	p	r	Metric B	Standardized B	t
Dependency ratio	—0.532	0.813***	—0.186823	—2.1100	1.66
Percentage of ever-married females	0.361	0.862***	0.100875	1.5450	1.02
Child women ratio	0.277	0.861***	0.007587	1.3145	0.76
Percentage of females with 1 or more years of schooling	0.065	0.871***	0.000001	0.1022	0.17
	R^2 = 0.836		F = 8.92		

***Significant at .01 level

females age 10 and over were reported to be in the labour force in 1961. Female work participation was found to be highest in the province of Punjab (12%) and lowest in the province of Baluchistan (3%). As for participation in non-agricultural activities, Punjab had the highest rate (3.03%) while Baluchistan again had the lowest rate (1.63%).

Correlation and regression analysis carried out to measure the association between selected predictors and work participation (in any activity) showed that residence in nuclear families and density had significant negative effects on female work. The negative relationship between nuclear living and work participation resulted possibly from the absence of other relatives in the household who could look after the children while the mother was away at work. Partial support for this thesis is provided by the positive relationship between dependancy ratio and work participation which implies that in non-nuclear families (where there are other relatives present) the older people can probably look after the children, thus freeing the mother for work. We hope that these speculations can be validated from later surveys for more recent times.[12] Marital status i.e. being married and literacy had a positive impact on work participation, as hypothesized. The relationships between child-women ratio and work participation also followed the hypothesized negative direction.

As for the province level differentials relating to the correlates of female work participation, most of the results were statistically insignificant. The findings did not point towards any systematic relationship between the predictors and the dependant variable within each province. Similarly, analysis for the 12 largest cities did not show any significant association between the independant variables and labour force participation.

As pointed out above, there were considerable problems inherent in the definition of female labour force activity. Part of the reason for the lack of differentials that were found in the provinces and cities could be because of definitional inadequacies. It is hoped that with more precise data provided by the HED survey some of these questions can be probed further.

[12]Detailed analysis of the nature and correlates of female labour force participation can be undertaken from the 1973 HED survey and the 1976 Pakistan Fertility Survey.

Table 1-A

Regression and Correlation Results for Work Participation in Total Labour Force in Nine Largest Districts of Pakistan, 1961

Explanatory Variables	p	r	Metric B	Standardized B	t
Density	—0.592	—0.400	—0.015262	—1.8761	1.04
Percentage of literate females	0.419	—0.371	0.735437	2.0545	0.66
Percentage of nuclear families	—0.246	0.270	—0.314219	—0.9127	0.36
Dependency ratio	0.235	0.456	0.590104	2.2651	0.35
Child women ratio	—0.085	0.374	—0.006253	—0.3179	0.10
Percentage of ever-married females	—0.027	0.384	—0.046183	—0.1818	0.03
	F=0.47		R^2=0.585		

Table 1-B

Regression and Correlation Results for Work Participation in Non-Agricultural Labour Force in Nine Largest Districts of Pakistan, 1961

Percentage of nuclear families	—0.782	0.278	—0.472934	—3.3340	1.06
Percentage of literate females	0.666	0.159	0.511139	3.4653	0.89
Density	—0.579	0.104	—0.004971	—1.4831	0.71
Percentage of migrant females	—0.535	—0.252	—0.082933	—0.9157	0.63
Dependency ratio	0.457	0.313	0.437181	4.0726	0.51
Child women ratio	0.342	0.410	0.010441	1.2883	0.36
Percentage of ever-married females	—0.286	0.393	—0.208200	—1.9889	0.30
	F=0.37		R^2=0.723		

Table 2-A

Regression and Correlation Results for Work Participation in Total Labour Force in Thirty Six Smaller Districts of Pakistan, 1961

Explanatory Variables	p	r	Metric B	Standardized B	t
Percentage of nuclear families	—0.365**	0.397**	—0.497208	—0.9752	2.12**
Dependency ratio	0.364**	0.523***	0.824817	2.1143	2.10**
Child women ratio	—0.356**	0.481***	—0.053727	—1.7062	2.05**
Percentage of ever-married females	0.313*	0.555***	0.403163	1.1557	1.78*
Density	—0.170	0.105	—0.007811	—0.2035	0.93
Percentage of literate females	0.036	0.221	0.088416	0.0406	0.20
	F = 5.39		R^2=0.527		

Table 2-B

Regression and Correlation Results for Work Participation in Non-Agricultural Labour Force in Thirty Six Smaller Districts of Pakistan, 1961

Percentage of migrant females	—0.356*	—0.745***	—0.038319	—0.7254	2.02**
Percentage of literate females	0.224	0.607***	0.080399	0.2329	1.22
Percentage of nuclear families	0.163	0.690***	0.0299856	0.3696	0.87
Child women ratio	—0.123	0.605***	—0.002579	—0.5170	0.66
Density	—0.118	0.463***	—0.000766	—0.1259	0.63
Percentage of ever-married females	—0.101	0.673***	—0.021376	—0.3867	0.54
Dependency ratio	0.098	0.643***	0.030016	0.4856	0.52
	F=6.46		R^2=0.617		

*Significant at .10 level
**Significant at .05 level
***Significant at .01 level

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