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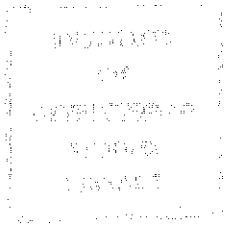
PAKISTAN'S LABOUR FORCE, ITS SIZE AND STRUCTURE
A REVIEW OF EVIDENCE

Mohammad Irfan
Senior Research Economist



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Dr. Irfan is a Senior Research Economist in the Pakistan Institute of Development Economics, Islamabad,

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INTRODUCTION

The quality and quantity of the labour force of a country are two of the major indices of the productive potential of its economy. A reliable estimate of the labour force is essential for an assessment of the feasibility of production targets as well as for determining the appropriateness of development policies geared to employment promotion and economic growth. Factors influencing labour supply decisions of individuals and families, therefore, constitute a set of important variables, and development planning must reckon with them. The nature of association between various demographic and socio-economic variables and the size of labour force needs to be investigated thoroughly for an informed policy formulation.

Size of labour force is simply a product of working age population and activity rate. The former, a very important facet of population structure, is generally regarded as a socially determined demographic measure; the latter represents a ratio of the economically active persons in a specific age-sex cohort to population. The identification as well as reliable measurement of active population, essentially a mapping of human behaviour into a set of well-defined distinct categories, is quite problematic. Conceptual ambiguities and inadequate data base preculde a reliable estimate of the size and composition of Pakistan's labour force and of their changes over time.

Labour supply in Pakistan, as in other developing countries, is measured by inappropriate concepts. Their inadequacy mostly stems from a lack of correspondence between the economic reality of the developing world and its perception and conceptualization. The major issues involved arise from the application of the notion of economic activity in a milieu where consumption and production cannot be compartmentalized. Household economic activities may dovetail with domestic work and blur the borderline between economic and non-economic activity. Furthermore, the identification of activity status in the context of household enterprise, with pervasive self-employment and unpaid family help, is bound to involve arbitrariness. In addition, the standard labour force approach, currently in vogue for measuring labour supply, depends on some norm for categorization of the labour force into the employed and the unemployed. A person's desire to have an available job, demonstrated through job search, qualifie a person without work to be enumerated into economically active population. In the absence of regular channels for job search, the concept of unemployment loses touch with the reality, and also is deficient as an indicator of labour supply unless supplemented with information on income and duration of work needed by jobless people.

Limitations of the concepts used in measuring labour supply have been widely discussed and are well known (20). Various suggestions and methods have been offered for refining the concepts. The ideal which can serve the dual function of providing a measure of labour supply and degree of labour utilization is yet to be achieved. The very efforts to improve upon the concepts, however, have led to the adoption of changing

definitions in different censuses and surveys, and thus hinder their intertemporal comparison.

For Pakistan, in the 1951 census, persons aged 12 years and over, self-supporting, partially self-supporting or seeking work, were included in the economically active population. In the 1961 census, the age limit was lowered to 10 years, and any person working for profit, wage or salary or helping any family member in a trade or profession or looking for work during the week prior to the census was enumerated as a member of the civilian labour force. The labour force surveys 1963-64 to 1974-75 and Housing Economic and Demographic Survey of 1973 adopted the standard labour force approach. All persons in the non-institutional population, 10 years and above, who were employed and unemployed during the last one week before the date of enumeration, were included in the civilian labour force. The employed constituted those who worked for pay or profit, for cash or kind, and unpaid family helpers if they worked at least 15 hours during the reference week. The changing definitions in the different sources of data impair their inter-temporal comparisions. The problems are further compounded by changing sample sizes, mis-reporting, and response errors. Notwithstanding these problems, the data on the size of labour force, its composition and changes over time are discussed in the following section.

In the section I, the data on labour force are presented and discussed. Section II presents a summary and evaluation of the research studies carried out so far on the determinants of labour force participation. In the third section, the employment structure, unemployment and

under-employment are discussed. The final section contains a brief summary highlighting the gaps in the existing body of knowledge which may provide guidelines for further studies.

LABOUR FORCE PARTICIPATION

Size of labour force is a product of working age population and activity rates, exhibited by various age groups. The size and age structures of the population are, therefore, important factors in determining the magnitude of the labour force. The population gwoth since the turn of the century (1900), presented in Appendix Table I, suggests that the growth rate of the population accelerated after 1951. The annual geometric rate of population growth during the 1961-72 intercensal period was twice the rate experienced two decades earlier (1941-1951). Pakistan thus witnessed a rapid population growth during the post-independence period, and registered a rise (from 32 million in 1947 to an estimated 81 million in 1980) which gives an annual growth rate of 3.1% for this period. The decline in mortality rate due to control of high-fatality infectious diseases, and a constant fertility rate were responsiblr for this dramatic rise in the population growth.

A precise estimate of both the population and its growth rate is, however, precluded by the inadequate quality of the data reported by various population censuses. Very few census results are free from manipulation and most of them suffer from over-/or under-enumeration. For instance, the Civil Disobedience Compaign in India affected the 1931 census enumeration. The agitation seeking independence for India and

the country's dividion on the basis of communal distribution introduced its own bias in the 1941 census. About the 1961 census, there is a consensus among demographers that it suffered from under-enumeration, the degree of under-reporting being around seven percent. For 1972 census there are counter-claims, however; a post-census evaluation survey revealed an under-enumeration of the order of six percent.

Notwithstanding the margin of error in the estimates of population, the post-independence demographic scene is characterised by a persistently high fertility rate which has influenced the age structure of the population. High fertility rate has a negative effect on the potential labour supply - the working-age population - and hence leads to decline in overall activity rate. The demographic trends observed in Paki-tan would thus suggest a decline in the crude labour force participation rate.

The crude labour force participation rates, as recorded by different sources are presented in Table 1. A strict intermporal comparison can hardly be made as the criteria of inclusion in the potential as well as actual labour force varied from one source to another. The data, however, suggest a persistent decline in the activity rate during the first half of the century (1901-51), which is plausible and can be attributed to demographic factors. For the post-independence period, 1951-72, the reversal of the declining trend appears inconsistent with the normal behaviour of a developing country, and, hence, needs to be discussed in detail.

TABLE I

Sources		Labour force as percentage of population	Crude Rates *		Refined Activity Rates **	
			Male	Female	Male	Female
P. Census	1901	34.8	57.0	8.5	-	-
"	1911	34.1	57.0	6.2	-	-
"	1921	33.3	56.1	5.4	-	-
"	1931	31.8	53.8	4.8	-	-
"	1951	30.60	55.1	2.1	79.4	3.1
Manpower S	1955	31.10	-	-	-	-
P. Census	1961	32.36	55.0	6.1	80.8	9.3
LFS	1963-64	32.60	-	-	-	-
"	1964-65	33.76	-	-	-	-
"	1966-67	33.45	57.62	6.71	86.7	10.3
"	1967-68	33.32	57.83	6.89	86.7	10.5
"	1968-69	29.49	52.40	4.36	79.0	6.6
"	1969-70	30.34	53.32	4.88	79.3	7.3
"	1970-71	30.41	53.13	5.43	80.0	8.1
"	1971-72	29.90	51.87	5.39	78.6	8.0
H.E.D.S.	1973	32.66	55.41	6.23	77.6	9.0
L.F.S	1974-75	29.50	52.08	4.27	76.7	6.3

Source: 1. Dimensions and Structure of Labour Force in relation to Economic Development by Ghazi M. Farooq.

2. Labour Force Surveys.

* Crude activity rate is defined as number of persons in the labour force divided by the tot total population.

** Refined activity rate refers to number of persons in the labour force divided by the population aged 10 years and above.

A comparison of the 1951 census with that of 1961[1] yielded a gain in crude activity rate. Labour force as a percent of population went up from 30.7 to 31.8 during the intercensal period. Since male crude activity rate declined, the rise in overall participation rate was accounted for by an expansion in the female crude activity rate from 2.1% to 6.0% during the period under review. This rise in female activity rate appears a product of definitional changes, whereby unpaid family workers, unlike in the 1951 census were included in the labour force in the 1961 census. A similar comparison between the 1961 census and the Housing, Economic and Demographic Survey of 1973 suggested a rise in overall activity rate, with the gain shared by both males and females.

Problems of interpretations get complicated by observed asymmetry of trends in crude and refined activity rates. During the 1951-61 intercensal period, male refined activity rate rose while crude activity rate declined. For females, however, both the indices registered a gain. During 1961-73, there was a rise in crude activity rate but a decline in the refined activity rates for both males and females. This discrepancy between the two indices appears mostly due to erroneous age reporting, which led to substantial changes in reported age structure and thereby generated divergent trends. The age distribution of the population reported in various censuses, given in Appendix Table II displays an erratic fluctuation in the share of the inactive population (0-9 years) during the period which is inconsistent with normal demographic behaviour.

1. 1961 census adjusted for the discrepancy in the minimum age of entry into labour force which was 12 years in 1951 and 10 years in 1961.

Age-Sex-Specific Labour Force Participation:

In order to have a picture relatively free from age misreporting effects further disaggregation in terms of age/sex labour force participation is presented in Table 2. A comparison of HED 1973 data with those of the 1961 census suggested that most of the males experienced a gain in their activity rates except for those lying in the age brackets of (15-19) and (60+). The profile of the male labour force participation attains a peak for the 35-44 years age group. A fairly high proportion of persons belonging to the age cohort of 10-14 years was included in the labour force in both 1961 and 1973. The rise in the activity rate of male children in the latter year over that of the former year was mostly an urban phenomenon; labour force participation rate of this group went up from 18% to 26% during this period in urban areas.

Intertemporal comparisons of the female labour force participation indicated that the three younger age groups (10-25) and the elderly age group (60 years plays) registered a rise while the prime age females (25-60) displayed a decline in their activity rates. A very sharp gain in the labour force participation was experienced by very young females (10-14). Urban females of this group registered a distinctly higher accretion to their activity rate than their counterparts in rural areas. Similarly, the decline in the activity rate of the prime-age females was mostly a rural phenomenon.

A decomposition of the changes in the size of economically active population between 1961 and 1973 into population-growth effect

TABLE 2

AGE SPECIFIC LABOUR FORCE PARTICIPATION RATE

Age Group		1961 Census	1973 H.E.S.	LABOUR FORCE SURVEYS						
				1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1974-75
10 years & over										
	Both Sexes	48.10	46.63	53.63	51.34	44.71	45.45	45.87	45.24	43.78
	Male	80.67	77.32	5.84	86.81	79.05	79.36	80.06	78.66	67.71
	Female	9.27	9.11	-	10.53	6.64	7.40	8.21	8.14	6.37
10-14	Male	38.4	39.48	53.63	57.23	31.32	29.65	32.48	31.80	32.51
	Female	4.7	10.34	5.84	6.95	3.23	4.25	4.75	3.4	3.26
15-19	Male	72.3	67.71	78.55	78.06	65.60	66.77	65.52	67.28	64.7
	Female	7.6	8.65	8.09	10.15	5.53	7.02	6.94	6.70	5.3
20-24	Male	87.9	87.42	93.68	93.60	88.64	90.50	90.00	89.10	88.35
	Female	9.6	10.81	15.51	11.41	6.40	8.49	8.18	9.6	6.62
25-34	Male	93.7	95.4	98.53	98.47	96.54	97.22	97.50	96.96	96.94
	Female	10.6	8.7	13.27	11.46	7.71	8.70	10.00	10.57	7.90
35-44	Male	94.5	96.8	98.26	98.26	97.42	97.54	98.30	98.35	98.07
	Female	11.7	8.4	9.72	12.20	9.31	9.66	10.35	10.91	8.80
45-54	Male	94.3	95.3	97.46	97.69	97.4	96.42	96.26	96.85	96.82
	Female	11.8	8.0	9.28	11.35	8.6	7.37	9.94	10.05	7.8
55-59	Male	90.97	90.81	94.80	94.40	90.36	90.20	93.41	92.22	91.93
	Female	10.22	7.30	9.35	10.14	5.63	6.75	9.77	5.67	6.13
60+	Male	80.16	73.7	78.54	81.33	72.67	74.59	74.27	69.84	70.57
	Female	7.9	8.2	7.95	8.96	4.69	4.73	4.67	4.59	5.53

and changes in activity rate revealed that all the males except those in the age bracket of (15-19) displayed a higher propensity to participate in the economic activity in 1973 than in 1961. The behaviour of females was interesting. Prime-age females (25-60 years of age) had a lower propensity to participate in 1973 than in 1961 while the younger (10-25) and elderly females showed the opposite trend.

Rural/Urban Differentials in Labour Force Participation:

All the age groups in rural areas exhibited higher activity rates than their counterparts in urban areas in both the 1961 census and the 1973 HED Survey. The rural urban differentials in labour force participation have narrowed during this period for both males and females. A comparison of the 1961 Census with the 1973 HED Survey suggested that urban females registered a rise in contrast to rural females, who, with the exception of those belonging to the 10-14 age group, experienced a decline in their participation rate. Males in urban and rural areas tended to behave alike. Except for the males lying in the age bracket 15-24 or those over 60 years in age all others registered a rise in their activity rates. The male activity rates in urban areas displayed a higher gain than those in rural areas.

The results discussed so far can partly be verified by the data reported in the different labour force surveys pertaining to this period. Unfortunately, the data on activity rates reported in the labour force surveys for the years 1963-64 to 1967-68 appeared an over-estimation, while the rest of the surveys failed to reflect any distinct

trend in the activity rate for most of the age groups. These surveys however tended to confirm the rise in the activity rate of male children (10-14), while the activity rate of female children remained largely stable. The decline in the activity rate of the next two age-cohorts, (15-19) and (20-24), of both males and females during 1968-74 was borne out by these surveys. This is consistent with the findings based on census comparisons.

This brief review of the data on labour force participation offers very few conclusions. Whatever oblique vision is perceived, however, it reflects that during 1951-61 male labour force participation rate declined and the rise in female participatinn rate was mostly a consequence of changes in definition. For 1961-73, both the male and female crude activity rates showed a slight rise. Females behaved differently in rural and urban areas. Most of the rural females, except, those very young (10-14), registered a decline while the urban females exhibited a rise in their activity rate. Thus the rural urban differentials in female labour force participation tended to narrow down during 1961-73. The most puzzling finding pertains to changes in the labour force participation rate of the very young (10-14), which displayed a distinct increase, specifically in urban areas during the period under review.

Some of these observations do not conform to the behaviour expected in a developing country. Developing countries usually experience a decline in crude labour force participation. Increased educational facilities - an associate of economic development - leads to postponement of entrance into labour force. Legal reduction in retirement

age may lead to decline in the activity rates of the elderly. Durand (6), in his cross-country analysis, found that the labour force participation of males under 20 and over 65 rapidly declined in the early stages of economic growth, and regardless of the level of development, nearly all males in the age of group of 26 to 55 were in the labour force. Trends for female labour force participation were found to be less discernible, however.

Inter-temporal changes in labour force participation observed in Pakistan have been a subject matter of two research studies. Farooq (7) in his analysis of the changes in activity rate between 1951 and 1961 censuses viewed that the rise in female labour force participation rate was mostly due to change in definition, and, hence, was a statistical artifact. Beg (2) tried to assess the relationship between economic growth and labour force participation. On the basis of a significant positive association between GNP and crude activity rate, as reported in various labour force surveys, he argued that the rise in activity rate during 1961-72 was a real phenomenon, and thereby alluded to the existence of a discouraged worker phenomenon which is not implausible for a developing country like Pakistan.

Notwithstanding the fact that Beg's explanation of rising activity rate in terms of discouraged-worker effect appears convincing, his analysis runs into difficulties. He adjusted the data on activity rates, which is questionable because the Central Statistical Office (CSO), which collected this data, refrained from making any upward adjustment, as

Beg did, precisely, due to lack of any sound evidence[1]. Furthermore, the analysis was conducted at a very high level of aggregation. Which group of the labour force exhibited a rise in its propensity to participate in economic activity during the period under review and how had the economic growth of the period a differential impact on the opportunities for each group were questions not answered in any detail by Beg[2].

Time series data on labour force participation in fact represents a patch work of various labour force surveys and censuses. Comparison between these sources is marred by a variety of factors already discussed It is, therefore, difficult to assess whether the rise in activity rates of the young (10-14) and elderly females observed during 1961-73 is a statistical artifact or a fact of Pakistan's life. A few studies which attempted to identify the determinants of labour force participation in Pakistan are discussed in the next section. An examination of these determinants will yield implications bearing upon the plausibility of the time trends in labour force participation.

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1. While the C.S.O. kept on writing, in the labour force surveys during the year 1968-69 to 1971-72, that female activity rate is under reported they preferred not to adjust it upward. Moreover, the unadjusted 1967-68 activity rate, which prompted Beg to adjust the subsequent years data, is considered as exaggerated figure by C.S.O. Furthermore, even if one concedes that adjustment was not totally incorrect, the addition to female labour force will simple double the female activity rate. And it is not convincing as it implies 100% under-reporting in female activity rates.

2. He simply regressed crude labour participation rate (adjusted) on Gross Domestic Product (GDP) for the period 1961-72.

DETERMINANTS OF LABOUR FORCE PARTICIPATION

Very little is known about the determinants of work participation by an individual or in the context of a family in Pakistan. Paucity of information on individual's labour supply responses to changing income wage configuration has constrained researchers to conduct analyses at a fairly aggregate level. Male and female activity rates reported at district level in the 1961 census has served as data source for a few studies.

In a cross-sectional study based on the above-mentioned census, Farooq (7) tried to explain male and female crude and refined activity rates. His regression results, reproduced in Appendix Tables IV and V, suggest a significant association between male crude activity rate and the variables of schooling, percent employees in labour force, non-agriculture industry mix, immigration rate and family composition. In the case of male refined activity rate, the variable of urbanization was substituted for the variable percent employees in labour force which added to the explanatory power of the model.

Some of the relationships implied by his regression analysis between dependent and independent variables were not very meaningful. The negative effect of school on activity rate was a by-product of the definitions of the variables involved. Males ten years and above attending schools (the schooling variable used in regression) were not enumerated in the labour force; hence an inverse relationship between schooling and labour force participation. Similarly, the positive influence of male (female) non-agriculture industry mix index on activity rates represented

a less meaningful result because the index simply measured the percentage of jobs in a district expected to be held by males (females). Inverse correlation between level of industrialization of district, proxied by the variable "percent employees in labour force" in regression equations, and the activity rates of both males and females was plausible because of wage employment being mostly an urban phenomenon where job structure and other factors are less accommodative to marginal workers. Migration had a positive influence on male labour force participation but a negative effect on female labour force participation. It was convincing as the migration of males was mostly job-oriented while female migration represented a movement towards grooms and husbands.

The most perplexing finding of Farooq's analysis was the inverse relationship between male activity rate and family composition - the percent of nuclear families in a district. He failed to provide a convincing explanation for this result and termed the variable as intermediate, reflecting the effect of many other factors. Besides these variables, marital status was also included in the list of independent variables for analysing female activity rate. A significant and positive association between female activity rate and percentage of females married in a district was rationalized by him in terms of greater social permissibility for married females to participate in economic activity.

Using the same set of data, Nasra Shah, Nasreen Abbasi and Iqbal Alam (16) tried to explain the inter-district variation in overall as well as non-agricultural female labour force participation. Separate regressions were also run for different provinces and the total sample was

bifurcated into 9 largest and 36 smallest districts. The regression results indicated that none of the independent variables could retain consistency in its sign across different equations. The results suggested that either relationship between independent variables and female labour force participation was tenuous or these independent variables were intermediate ones, portraying the influence of a set of variables which may have changed across different sub samples.

Furthermore, the inter-district variation in crude and refined activity rates, as reported in the 1961 census, was substantially different for different age/sex groups. Dispersion ratio - Standard Deviation divided by Arithmetic Mean - in inter-district age sex specific labour force participation rates was higher for females than for males across all the age groups. For females the dispersion ratio exhibited a U-shaped relationship with age, being higher in marginal age groups (10-14) and (60+) and lower in the medium age groups (25-54). In case of males, such a pattern was not discernible though the marginal groups exhibited higher variance in the inter-district labour force participation rate. It was more appropriate, therefore, to analyse the labour force participation of different age cohorts.

Irfan and Shahnaz Hameed (11) tried to identify correlates of child labour, using the district level labour force participation in 10-14 age cohort, including both males and females. Factors influencing the labour force participation of the young were explored in a multiple-regression framework. The regression results, reproduced in Appendix Table 6, showed that school enrolment of children, and urbanization of a

district had a negative effect on child work. Average size of the farm, size of family, percentage of unpaid family workers in agricultural labour force and female refined activity rate obtained in a district had a positive association with the activity rates of children.

The schooling variable carried partly a built-in correlation. Furthermore, to the extent that decisions about sending children to school or work are jointly made by a family the estimation procedure runs into simultaneity problem. A positive correlation between the female and child work participation simply suggested that the same set of factors influenced both. A positive effect of the size of the farm possibly reflected its contribution to the marginal productivity of children, hence a higher demand for child labour.

The relative importance of supply or demand forces operating upon the children's decision to participate in economic activity can hardly be assessed at this level of aggregation. Some of the relationships borne out by regression analysis, however, implied that child work may not be out of choice but rather forced by poverty. The average size of the family may be a reflection of the dependency load that exerts pressure on children to work. Similarly, a positive relation between proportion of landless labour in agriculture and child labour force participation was reflective of the influence of supply forces. Another interesting, though statistically insignificant, relationship was displayed by the negative association between per capita agricultural income and children's activity rate.

The aggregative nature of the studies discussed above impairs their quality. Any correlation between labour force participation and some variables at the district level hardly reflects labour supply responses of an individual. An identification of the factors influencing the individuals propensity to participate in economic activity needs a thorough analysis of data at the level of household or individual. Two studies based on National Impact Survey 1968 tried to provide some answers in this respect. Using sub-sample of currently married women from this survey, Nasra (17) attempted to identify the nature of association between demographic and socio-economic variables and female labour force participation. Some of the demographic variables, like age and duration of marriage, had a positive effect on labour force participation. These results, according to Nasra, were suggestive of the relatively greater social permissibility for elderly females to participate in economic activity. Education of married females was found to be inversely related with their work participation except for the subgroup of other employed (employees). Negative income effect on female labour force participation was borne out by the inverse relationship between economic well-being, proxied by land ownership, and work participation.

Khan (15) confined his analysis to the sub-sample of married females lying in the age bracket of 35-49 and have completed their family size. The sub-sample was also further sub-divided into rural and urban females. The regression results, reproduced in Appendix Table 7, bear out some of the theoretical expectations. Income effect was found to be negative on work participation while price effect, proxied by female

education, was not inversely related to work participation - a finding different from Nasra's. Family composition variable - nuclear family - had a positive effect on work participation which represented an exception to the findings of earlier studies. The most interesting finding of Khan's analysis pertained to the effect of children on female work participation. The presence of children under five years of age failed to have any significant influence on work participation, which implied that the demand for child-care time hardly affected the probability of female labour force participation. The total number of live births - a proxy for fertility - exhibited a depressing effect on work participation, however. It must be mentioned that both Nasra and Khan focussed their analyses upon the labour force participation of married females. Their findings, therefore, can hardly be generalized for all the females. Furthermore, both the studies suffer from an inadequacy of the estimation methodology. Nasra simply confined herself to an assessment of association, by Chi Square technique, while Khan's estimation procedure was inappropriate for a dichotomous dependent variable.[1]

The findings of these studies lend credibility to some of the intertemporal changes in age/sex specific labour force participation rate. For instance, lower rural female labour force participation in 1973 than that in 1961 may be a reflection of prosperity-induced leisure preference. Similarly, the labour force participation of males 60 years and above may have been adversely affected by changing job structure

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[1] Precisely because of this reason Khan preferred not to discuss female labour force participation in the above mentioned paper.

wherein the people retired at this age. The negative association between schooling and labour force participation is only partially borne out by the 15-19 age group males, whose propensity to participate in economic activity was recorded to be lower in 1973 than in 1961. The rise in the participation of very young (10-14) males and females, however, is not consistent with the results of these studies.

The foregoing review of past research efforts brings into sharp focus the gaps in our knowledge regarding the influences of various socio-economic factors on labour force participation. The absence of any evidence on the nature of relationship between wages and work participation constitutes a major deficiency in the existing body of knowledge. Similarly labour force behaviour of marginal groups - the children and females - needs to be explored in the context of household decision making. Inter-relationship between poverty and child labour, fertility and female labour force participation is not well understood. Furthermore, the influence of changing job structure on activity rates constitutes a relatively neglected area. Activity rates exhibited by various age/sex groups are the inter-actives effects of demographic base and set of job opportunities offered by economic transformation. In the next section we discuss the structure of labour force as depolyed in various industries and the likely implications of this employment pattern for activity rates of various age groups.

EMPLOYMENT STRUCTURE

Many difficulties have to be overcome in arriving at a reliable estimate of the level and composition of employment. All the uncertainties and margin of error associated with the measurement of labour force and its classification into the employed and the unemployed are bound to be reflected in the estimates of employment. Furthermore, the predominance of family-based enterprise with corresponding perponderance of self-employment and unpaid family helpers introduces complications into the concept of effective employment and labour utilization. In addition, information on industrial distribution of employment pertains only to the employed labour force. A substantial change in the un-employment rate will hamper comparison over time. The level and composition of employment and their inter-temporal comparisons, therefore, need to be interpreted carefully.

The censuses of 1951 and 1961 suggested that total employment grew 32 percent during the intercensal period. The sectoral composition of employment shifted towards non-agricultural sectors which bespeaks the economic transformation of the period under review, wherein the output in large-scale manufacturing, construction and trade grew at a rate much higher than that of agriculture. Despite the significant growth in non-agriculture sectors, farming activity still accounted for 60 percent of the total employment in 1961.

A similar comparison between the census of 1961 and the 1973 HED Survey yielded a 34.6 growth rate in employment for the twelve-year period.[1] Compared to the 1951-61 intercensal period, employment registered

a lower annual growth rate during 1961-73. This was mostly due to the fact that a very high percentage of labour force (13%) was reported as unemployed in the 1973 survey. This high unemployment rate also generated some weird and meaningless results. For instance, the number of females engaged in agriculture in 1973 was reported to be smaller than in 1961. Similarly, manufacturing employment reportedly experienced a decline during this period. Whether this high unemployment rate was a reporting error, a whimsical response of the respondents or a reflection of economic reality obtaining at the time of enumeration is difficult to ascertain. It has, however, compounded the problems of comparison between the 1961 census and the 1973 HED survey.// Employment and its sectoral distribution covering the period 1961-73 are, therefore, estimated on the basis of the data provided in various labour force surveys and the 1961 census. The estimated data present varying growth rates for different sectors. Time trends, presented in Appendix Table 8, indicate that employment in transport and construction grew at the rate of 11% while services experienced a decline to the tune of 1% per annum. Employment registered annual growth of 2.5% and 4.0% in agriculture and manufacturing respectively.

// Employment did not grow at a uniform rate during the period. Rates of employment growth in non-agriculture were higher during 1961-68 than during 1969-72. Among the non-agriculture sectors, manufacturing displayed a stagnant trend in employment generation during the latter sub-period which contrasted unfavourably with the 5% employment growth in the earlier sub-period. Owing to the paltry employment growth in the non-agriculture sectors

especially manufacturing, agriculture absorbed most of the incremental labour force, which resulted in higher employment rate of growth in agriculture during 1969-72 than during the 1961-68 period. Fluctuations in employment growth in different sectors can also be gleaned from their changin weights in total employment.

A perusal of labour force surveys suggests that the share of agriculture in total employment declined from 60% in 1961 to 53% in 1966-67 and then rose during the subsequent period, 1968-72. Manufacturing exhibited an opposite trend. Its share in total employment kept rising till 1966-67, whereafter it reached a trough in 1971-72 and then registered a little improvement in 1974-75. The juxtaposition of the labour force survey and the HED survey of 1973 indicate[8] that the share of manufacturing in total employment declined while that of agriculture experienced a gain during the 1968-72 period.

The relative decline in manufacturing employment during the 1968-72 period was mostly due to niggardly performance of small-scale manufacturing, because the Censuses of Manufacturing Industries reflected an accretion to the tune of 8% in large scale manufacturing employment during the period 1969-74. The employment loss in manufacturing may be explained either by dislocation effects of the civil war in 1971 or by long-run factors - increased competition from mass-produced product, a change in consumers tastes, and a rise in the cost structure of small enterprise owing to higher input prices. Since most recent data were not available to help ascertain whether or not the small-scale sector had rebounded, it was difficult to isolate anyone of the above-mentioned factors. The labour

force survey 1974-75, yielded a rise in the share of manufacturing employment, suggesting that some improvement in small scale manufacturing may have taken place.

Sectors of economy other than agriculture and manufacturing experienced a rise in their share of employment during the 1951-73 period. Taken together, their share went up from 25% in 1951 to 34% in 1973, implying that a higher rate of employment generation occurred in tertiary sectors. The employment shares of construction and trade were tripled during this period. Employment in the services sector somewhat increased during the 1951-61 period and maintained its share during the subsequent period, 1961-73.

Employment by Status:

The atomized organization of production, largely in family enterprises and small units, renders the employment structure heavily dominated by self-employment and unpaid family help. A large number of small farmers, helped by family members, is a major feature of the agriculture scene. In urban areas, a similar scenario can be observed where small shop-keepers and own account workers are found in overwhelming numbers. Some changes in the relative proportions of workers by status have, however, taken place over time.

// Self-employment lost its share while the share of unpaid family helpers increased between 1961 and 1973 in both agriculture and non-agriculture. // A closer look at the data reported in labour force surveys reveals that the decrease in self-employment in non-agriculture sectors was

mostly confined to manufacturing. This may have been led by shrinkage in the relative share of small scale manufacturing in the sectoral employment.

Wage employment rose over time, but its trend seemed to have been governed by economic growth. In non-agriculture sectors, the share of wage employees exhibited a dip during the 1970-72 economic dislocations, and registered a slight recovery in 1974-75. In the agriculture sector the relative share of wage employment went up between 1961 and 1968 and declined thereafter. A sharp rise in the proportion of unpaid family helpers along with a discernible shift away from wage employment in agriculture appears a substitution of family for hired labourer.// In the wake of rising rural wages (3), the farmer's propensity to economize on wage payments may have been stimulated, leading to a fall in the demand for hired labour (9).

Productivity Trends:

The nature of the organization of production and the level of technology undergo changes during the process of economic growth. These changes are also accompanied by variations in different dimensions of employment structure and inter-sectoral productivity relationships. Intertemporal comparisons in inter-/and intra-sectoral productivity reflect the inter-active effect of technological advances made in different economic activities and of the resultant mobility of workers.

Available statistics yield a productivity profile only at the one-digit-level classification of economic sectors. Both the numerator and denominator of the productivity index - average product per worker - lack of reliability. Problems in estimation of employment - the

denominator - are already discussed; numerator - value added in different sectors - suffers from inadequate valuation procedure. Furthermore, the distortions introduced by various government policies on the price-/and cost-structure of various economic activities hinder a meaningful assessment of productivity relationships between the sectors. Kemal (14) for instance world found productivity in manufacturing at world prices to be one third of that of estimated at domestic prices for the year 1968-69.

Labour productivity estimated (or guesstimated) at the economy level suggested a 44% rise in 1974-75 over 1950-51, which amounted to a 1.6% annual geometric rate of growth. But the labour productivity trend displayed fluctuations over time. The movement of labour productivity index was influenced by the GDP growth rate, because employment - the denominator - tended to grow at a uniform rate for the economy as a whole. A high rate of accretion to productivity was, therefore, experienced during the Sixties wherein GDP grew at a rate much higher than that of employment and resulted in a roughly 3.5% annual geometric rate of growth. In contrast, the corresponding figures for 1951-61 and 1969-74, the periods of low economic performance, were 0.35% and 1.5% respectively.

The sectoral growth pattern of labour productivity was characterised by widely divergent growth rates. Varying rates of growth in labour productivity exhibited by different economic sectors generally carried the effect of employment growth. During the period 1961-72, for each year of which employment could be estimated, higher rates of employment growth in sectors like construction, transport and trade were accompanied by low or negative growth in labour productivity (See Appendix Table 8). These

trend growth rates iron out the effect of variations in economic conditions and tend to mask some important characteristics. For a more adequate description, a brief account of the major sectors of economy appears essential.

Data on the average product per worker for a few broad sectors of the economy given in Table 3 indicate that labour productivity in agriculture grew during 1961-69 and declined during 1951-61 and again in 1969-74. The productivity profile of agrilture bears the impact of the Green Revolution of the Sixties. The agricultural stagnation of the Fifties is reflected by a negative productivity growth and by employment generation at a rate less than that of the Sixties. The decline in productivity during the early Seventies may have been caused by the low rate of output growth due to floods as well as by a high rate of labour absorption.

Manufacturing experienced a persistent rise in labour productivity, the growth rate being higher in the Sixties than in other sub-periods, which was suggestive of the effect of high level of investment activity and the adoption of modern technology. Both were pronounced in the Sixties. Productivity growth registered by manufacturing during 1969-74 was accompanied by insignificant employment generation. Part of the rise in productivity during this period therefore, may have resulted from the changing composition of manufacturing employment because, as mentioned before, employment in low-productivity small-scale manufacturing plumeted during this period, which may have generated a higher average labour product.

Table 3

Sectoral Growth Rates of Labour Productivity and Employment

Name of Sector	Productivity Per Employed (Rs. in 1959-60 Prices)				Growth Rate Per Year					
					Productivity			Employment		
	1951	1961	1968-69	1974-75	1951-61	1961-68/69	1968-69 to 1974-75	1951-61	1961-68/69	1968-69 to 1974-75
Agriculture	1088	1067	1267	1206	-0.63	3.3	-0.8	1.8	2.5	3.0
Manufacturing	1126	1332	1888	2351	1.29	5.0	3.7	6.3	5.4	0.9
Construction	N. A.	2338	2665	2080	-	1.9	-4.0	-	9.5	9.3
Trade	2467	2566	2440	2546	0.3	-0.8	0.7	3.1	9.4	5.0
Transport	4000	3146	2982	2634	-2.7	-0.7	-2.0	7.7	10.1	6.7

Note:

1. Services sector is excluded because of the defence which is included in the value added but not in civilian labour force.
2. Employment data for 1951 and 1961 population censuses of Pakistan: Population projections of planning commission and labour force surveys for the year 1968-69 and 1974-75 are used to arrive at employment figures in different sector.
3. Value added has been taken from Pakistan Annual Economic Survey 1978.

Construction workers experienced a productivity gain during 1961-68 and a decline during 1968-75. Both the sub-periods, were, however, associated with a 9 percent annual growth in employment. It seems that expansion of construction activities in private sector had been at a rapid pace during the latter sub-period were average productivity level was lower than in the public sector. Labour productivity in trade at best exhibited a stagnant trend, accompanied by a reasonable rate of employment growth. This was indicative of the larger voluem of transaction and corresponding multiplication of shops. It must be mentioned that constancy of profit margin is implicit in the valuation procedures of output in trade. The transport sector exhibited a declining trend in average product per labour during the 1951-75 period. Partly this may have been due to the compositional change in employment - a shift from predominantly railway to rickshaws. Stagnant and declining productivity trends in tertiary sectors are reflective of the absence of technological innovation, and of a very high rate of employment growth in these sectors.

Despite the gradual attrition in labour productivity in the tertiary sectors, their level of productivity in 1974-75 was higher than that of agriculture and small-scale manufacturing. The fact that latter sectors were loser in the relative share of employment while the former were gainers suggested that higher employment growth was experienced by high productivity sectors and that the workers moved from low-/to high productivity sectors. Because of a lack of sympathetic movement of growth in productivity and employment intersectoral differentials in productivity levels have narrowed during the period under review. Inter-sectoral

productivity relationships discussed so far were at one-digit-level classification which concealed a large amount of variation within the sectors. In the presence of technological dualism pervading the entire economy, intra-sectoral productivity differentials might have been much higher than across the sectors. Non-availability of data at a disaggregated level precluded the identification of activities or economic subsectors which had experienced the fastest growth in productivity.

Viewed in the context of international experience, structural changes experienced by Pakistan's economy were not atypical. The nature of association between transformation in the industrial structure and economic development had been ascertained, besides others, by Fisher (8) Clark (5) and Chenery and Syrquin (4). A progression in allocation of labour force from primary to secondary and tertiary sectors was found to be an associate of economic growth. This pattern of transformation is usually attributed to the varying nature of domestic demand. Clark argued that with a rise in per capita income, demand shift away from agricultural to non-agricultural products. Chenery and Syrquin (4) empirically investigated this phenomenon by regressing the sectoral shares of labour force on per capita GDP and population on a sample comprising 110 developed and developing countries. For a country of 10 million people and a per capita GDP amounting to US $500 in 1964, the partial elasticity of agriculture's share in employment with respect to the per capita GDP was found to be -0.5. The corresponding elasticities for industry and services were 0.39 and 0.27.

Pakistan's employment structure appears to have followed this general trend, though the transformation in the industrial composition of employment was arrested during 1969-72 owing to the stagnation of the economy wherein agriculture had to absorb the majority of the incremental labour force. A regression of sectoral employment shares on per capita GDP for the period 1961-72 yields the elasticity coefficients of -0.11 for agriculture and 0.61 for manufacturing which are greater in magnitude than Chenery's. This discrepency may be due to Pakistan's position at the lower end of per capita GDP in Chenery's sample. Moreover, the uniformity of experience in the process of economic development implicitly assumed in Chenery's international cross-section analysis may not have been fully replicated in the case of Pakistan.

Employment growth in different sectors of Pakistan's economy and the resultant manpower structure have not been explored fully. A few exercises at the one-digit-level classification of sectors were conducted to estimate the elasticity of employment with respect to output growth. Nulty (18) and Irfan (10) regressed employment on value added for different sectors of the economy. Their results pertaining to two different periods, viz. 1951-64 and 1961-72, (reproduced in Appendix Table 9) suggest that the elasticity coefficients decreased in magnitude during the latter sub-period. The variation in elasticity coefficients may have resulted from the adoption of labour-saving technology and/or from a relative expansion of activities which were capital-intensive.

Marginal products implied by these regression equations rose during the latter sub-period for agriculture and manufacturing and did not undergo a substantial change for other sectors. Factors influencing productivity growth in different sectors of Pakistan's economy have not been fully investigated. Elasticity of productivity with respect to value added, yielded by the 1961-72 data, was highest for manufacturing and negative for transport and construction. These coefficients imply that employment lagged behind output growth in the manufacturing sector. Moreover, employment expansion in tertiary sectors led to a reduction in their pre-existing levels of productivity. An absence of positive association between growth rate in employment and productivity emerged as a major result. The redeeming feature, however, was the fact that the sectors which suffered a drop in their labour productivity still enjoyed a higher level of productivity than the sectors which experienced a decline in their shares of employment. This lends an impression that employment generation may have not been a thrust of labour supply.[1] In addition to the nature of workers' inter-sectoral movement, the degree of manpower utilization also constitutes an important barometer of the labour market performance. Unemployment and under-employment are discussed in the next section.

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[1] Establishment of such a result, however, would require a comparison of marginal rather than average productivity alongwith wage behaviour overtime.

IV. UNEMPLOYMENT AND UNDER-EMPLOYMENT

(a) Unemployment

The unemployed constitute a sub-set of labour force and are defined as idle and looking for work. In the context of family-based enterprises with a predominance of self-employment and unpaid family help, an identification of idle workers is problematic. Very few individuals will perceive themselves as idle in a milieu of work-sharing. It is no wonder then that most of the data sources reported an insignificant percentage of labour force as 'unemployed'.

The unemployment rate, as provided by different labour force surveys and the 1961 census, averaged around 2 to 3% of the labour force. The HED survey conducted in 1973 was, however, an exception which reported a 12.8% unemployment rate. Whether this high unemployment rate was a reporting error, a response reflecting the post-war dislocation of the economy, or an outcome of the timing of the enumeration -- August being a month of slack labour demand -- is difficult to determine. A closer look at this survey reveals that more than two-thirds of the unemployed were teen-agers. Disaggregating the unemployed by education suggests that one-third of the total had at least primary school or higher education. Slightly less than one-half of them were graduates of high school or higher institutions. Over 42,000 of the unemployed had college or university degrees which represented a two-year output of these institutions in the country. The high incidence of unemployment among the educated youth, as reported by the 1973 HED survey, hardly appears

inconsistent with the findings of other studies pertaining to the late Sixties and early Seventies.

Numerous empirical studies (1) mostly confined to matriculates and above were carried out during 1968-72 which reported a very high rate of unemployment among the educated youth. Forty-seven percent of university graduates were jobless in 1972. Another study revealed that 16% of the Agriculture University graduates remained unemployed for 2-8 years after leaving the university. More than three-fifths of the high school graduates in the NWFP in 1972 could not get jobs even two years after leaving school. Irrespective of the type of education, the unemployment rate was higher in 1972 than in 1970 and higher in 1970 than in 1968.

Concern about unemployment among the educated youths had a short life and receded in the backdrop of the massive exodus of manpower to the Middle East. Data from employment exchanges, however, suggest a rising trend in unemployment during 1977-79. Approximately half of the unemployed were matriculates and above. The impact of emigration on unemployment within the country may be marginal. It may, however, have relieved the problem for the time being as well as eased off the pressure for employment promotion. The current complacent attitude towards the employment problem can hardly be justified, because the studies dealing with manpower supply and demand projections tend to suggest a very high unemployment rate by 1985, when the construction boom in Middle East may end.

(b) Under-employment

The rate of open unemployment fails to provide a measure of the degree of labour utilization and nature of employment. The adequacy of employment can be evaluated if information pertaining to various dimensions of employment, such as income, productivity, duration of work, acceptability and security of job, is made available. The concept of under-employment, often used as a catch-all term to incorporate some of these aspects of the employment problem, is generally categorized into two major types - visible and invisible. The former consists of employed persons involuntarily working part time or for shorter than the normal period of work. Invisible under-employment is further sub-divided into three types: (a) when job fails to allow full use of the skill of persons, (b) when income from the job is very low and (c) when the employed persons belong to low productivity establishments. Sub-categories (a) and (b) are generally called "disguised" while (c) is referred to as "potential" under-employment.

This scheme of classification is ambiguous and cannot be operationalized without invoking arbitrary norms. For instance, what constitutes a normal duration of work is difficult to define objectively. Similarly, a strict adherence to the definition of disguised under-employment would lead to the conclusion that everybody is under-employed. In order to assess whether a person on a specific job belongs to the category of mismatch or not, we would require an array of indices to be applied.

Pakistan's data sources provide some information on some aspects of under-employment. Distribution of the employed labour force by the number of hours worked during the reference week reported by various labour force surveys constitutes the major data source pertaining to under-employment in terms of the "hours worked" criterion. Robinson and Abbasi (19) analysed these data and concluded that under-employment was small, but was higher in rural areas and was mostly confined to agriculture, commerce and trade. Low average product in agriculture was adduced as an additional evidence on higher incidence of under-employment in this sector. The pitfall in their analysis are discussed elsewhere in detail. In this paper we simply demonstrate how the analysis can be less meaningful if it is based on a simple arbitrary cut-off point definition of full employment/applied at a highly aggregated level. Needless to say that any inference regarding under-employment from sectoral productivity level would be an overly simplistic treatment of the subject matter of production function.

Whether under-employment, in terms of the "hour worked" criterion, is small or large obviously depends on the arbitrary norm of full employment. Assuming 48 hours of work per week as full employment, the under-employed constituted roughly half of the employed during the period 1966-72. Under-employment defined as work less than 35 hours per week accounted for less than one-tenth of the employed for the period under review. Rural/urban incidence of under-employment hardly appeared to be invariant with respect to definition of full employment. In the case

of 48 hours of work per week, under-employment was higher in urban areas than in rural areas. The finding got reversed if full-work norm was changed from 48 to 35 hours per week. The level of aggregation imposed by non-availability of data precluded an identification of the under-employed by their ages, education, sector of activity, employment status and occupation. In what follows the dis-aggregated data of 1974-75 labour force are used to identify the characteristics of the under-employed.

A higher percentage of secondary than of primary workers (head of household) was under-employed in both rural and urban areas in 1974-75. Under-employment was found to be disproportionately high among teenagers. Roughly one-fourth of rural workers in the age group (10-14) were reported as working 35 hours or less during the week. The corresponding figure for urban workers was 13%. The under-employed children (10-14) accounted for 31% and 16% of the total in rural and urban areas respectively. Similarly the percentages of unpaid family helpers falling under the category of under-employed was higher than those of the self-employed and wage employees.

The percentages of the employed labour force who worked 35 hours or less during the reference week were 7.3 and 3.8 respectively for rural and urban areas. Moderately under-employed — i.e. those working more than 35 hours but less than 48 hours a week - constituted 29% of the rural workers. The corresponding figure for the urban areas was 25%. The fact that the percentage of the under-employed, defined as those working less

than 48 hours per week, was higher in rural areas than in urban areas for the year 1974-75 represented a finding inconsistent with the results of earlier years (1966-72). This may have been due to the fact that the agriculture sector was badly hit by floods during 1974-75, leading to a fall in farm output. Agriculture being the mainstay of rural economy, its decline might have affected the employment of both agricultural and non-agricultural labour force in rural areas. The incidence of severe under-employment - defined as work of 35 hours or less - was highest in services and was followed by agriculture in rural areas. In urban areas, percentages of workers affected by severe under-employment were above average in construction, services and agriculture sectors.

The phenomenon of fewer work hours was found more pronounced among the highly educated, especially in rural areas. Twenty-six percent of the holders of degrees and post-graduate diplomas worked 35 hours or less during the reference week in rural areas. In contrast, only 7% of illiterates experienced this type of under-employment. In terms of occupation, association between education and under-employment was reflected in the highest percentage of professional workers being reported as under-employed. One-sixth of the professionals in rural areas and one-tenth in urban areas were recorded to be working 35 hours or less. In contrast low percentages of blue collar workers and agriculturists were found under-employed.

The disaggregated data which afforded a detailed identification suggested that under-employment was mostly a phenomenon of secondary workers and teenagers. Agriculture was not found as the exclusive abode of the under-employed; rather underemployment was relatively more concentrated in services. Interestingly commerce workers turned a very low percentage of the under-employed. Similarly, higher incidence of under-employment was found among the highly educated. Unless this result was specific to the year 1974-75, it suggested that the highly educated were absorbed by services like tailoring, barbershops and others as unpaid family helpers or part-time employees in private teaching institutes. It must be mentioned that these findings may vary with variation in the definition of under-employment. Sharp distinctions among various classes obtained by defining under-employment as 35 hours or less work per week get blurred in case of moderate under-employment - those who worked less than 48 hours per week. Irrespective of the definition, the magnitude of under-employment hardly constitutes an estimate of excess supply of labour amenable to deployment. Information on the strength of preference to work in family units and cost and disutility associated with changing the job location is also needed to provide any meaningful answers to policy-related questions. Unfortunately, these factors are not covered by data-collecting agencies.

Our knowledge regarding the other dimensions of under-employment, like category of mismatch or employment in low productivity establishment, is very little. Few studies dealing with income distribution in Pakistan

estimated the population below an assumed poverty line (13). The number of the poor and their proportion in total population were arrived at by drawing an arbitrary poverty line. Intertemporal trends in both the absolute number and percentage of the poor were, therefore, specific to this poverty line. A poverty line drawn at a very low level of income would suggest an absolute and relative decline over time in the incidence of poverty. On the other hand, a poverty line drawn at a high level of income would generate opposite trend. In addition to providing less than reliable estimates of the poor, these studies also failed to investigate poverty in terms of the socio-economic characteristics of the poor. Mostly this failure can be attributed to a lack of data. Furthermore, the nature of links between income distribution and labour-market operation are the least investigated. Whether the poverty is related to insufficient work, and hence to malfunctioning of labour market, can hardly be ascertained. A casual observation would, however, suggest that alleviation of poverty may be facilitated by extending the hold of the poor over productive assets, rather than by provision of more work. Of that the poor have had enough and want no more.

V. CONCLUSIONS

The fragile data base hardly allows us to offer any conclusion without trepidation. Exercise of care and reservation is, therefore, counselled in interpretation of the results based on a patch-work of different sources poor in reliability and adequacy. The data sources suggest that crude labour force participation rate rose during 1951-61 and roughly stagnated during 1961-73. The rise during the first intercensal period (1951-61) mostly owes to changes in the definition of female labour force participation whereby the female crude activity rate, reported in the 1961 census, was three times that of 1951.

Observed constancy of crude labour force participation rate during 1961-73 tends to conceal some interesting behaviour of some of the constituent groups at this level of aggregation. Further disaggregation in terms of age/sex revealed that while all the males except those in the age group (15-24) experienced a gain, the females except the very young (10-14) and elderly (60+) exhibited a decline in the activity rates during 1961-73. A decomposition exercise to adjust for the age structure effects showed that the very young (10-14 years of age), both male and female, displayed a higher propensity to participate in economic activity in 1973 than in 1961. This behaviour of the very young appears enigmatic and inconsistent with the expected changes of a developing country, because spread of education presumably leads to a decline in the labour force participation of the younger population.

Industrial composition of employment was affected by economic transformation experienced by the economy. There was a persistent decline in the share of agriculture during 1951-69. This 'disagriculturization' was arrested in the 1969-72 period because of stagnation in the non-agricultural sector during this period. The share of manufacturing in total employment displayed a rising trend during 1951-69 and suffered a decline during 1962-72 owing to artisan squeeze. The tertiary sectors experienced a continued growth in their employment share with the result that by 1974-75, more than 1/3rd of the labour force was engaged in these sectors. Similarly, employment status could not escape being influenced by changes in the structure of the economy. Wage employment rose during 1951-69 at the cost of other categories of workers. During the sub-period of 1969-72, the share of wage employment stagnated in non-agricultural sectors and declined in agriculture with a corresponding rise in the relative proportion of unpaid family helpers. It is difficult to speculate about the efficiency of the worker movement at this level of aggregation. However, the productivity profiles constructed at the one-digit-level classification suggested that workers in general moved from low to high productivity sectors. This movement led to a reduction in inter-sectoral productivity differentials because the sectors experiencing fastest employment growth displayed insignificant productivity growth.

Manpower utilization indexed by unemployment and underemployment failed to register any trend. Unemployment had generally been reported to be an insignificant percentage of labour force. During the late

Sixties, the quantitative explosion of the educated youth surpassed the white collar job creation and led to unemployment among the educated youth which assumed a serious proportion in the early Seventies. The pressure to introduce remedial measures for this imbalance was eased off with the massive exodus of manpower to the Middle East. The problem will re-emerge with added gravity by the end of the construction boom in the Middle East. The current policy attitude of inaction and indifference towards the employment problems is unjustified as well as disastrous.

Inadequate utilization of manpower or under-employment is quite widespread. On the basis of the "hours worked" criterion, the degree of under-employment hardly seemed to have changed during 1966-74. Under the assumption of 48 hours work per week as norm, roughly half of the employed labour force falls under the category of the under-employed, with proportionate representation by all the sectors of the economy. Data on other dimensions of under-employment, like income, are not available.

Paucity of data had been a major constraint in identification of the determinants of labour force participation of an individual. Not a single research effort to trace the slope of an individual's labour supply schedule had been made so far. Similarly, there is not much evidence on the effect of rising income on an individual's labour supply response. Furthermore, the emerging concern regarding interdependence in the household behaviour in production and reproduction is yet to be reflected in the research studies of Pakistan. The nexus between fertility and female labour

force participation can be better understood by a scrutiny of the household decision-making process. Improvement of data base, therefore, emerges as a major policy recommendation.

The type of data to be collected and the sharpening of the related concepts can hardly be suggested without a reference to some policy objectives. The labour force approach currently in practice is reflective of the belief in Keynesian demand management policies and in a one-to-one relationship between economic hardships and unemployment. Both of these assumptions have been questioned by structuralists and search theorists. The peculiar economic conditions of the developing world further add to the irrelevance of the labour force approach.

APPENDIX

TABLE NO. 1

Population Growth and Vital Rates
Per Thousand Population 1901 - 1972.

Population Growth in Pakistan

Census Year	Population in (000)	Intercensal Growth		Years	Average Annual Vital Rates Per Thousand Population		
		Percent Growth	Annual Geometric Rate of Growth(%)		Births	Deaths	Natural Growth Percei
1901	16576	-	-	1901-1910[a]	49.2	42.6	0.66
1911	19382	16.9	1.6	1911-1920	48.1	47.2	0.09
1921	21109	8.9	0.8	1921-1930	46.4	36.3	1.01
1931	23542	11.5	1.1	1931-1940	45.2	31.2	1.40
1941	28282	20.1	1.9	1962-1965[b] PGE			
1951	33740	19.4	1.8	(i) LR	42.0	15.0	2.70
				(ii) CS	38.0	11.0	2.70
1961	42880 (46200)*	27.0 (37.0)*	2.4 (3.1)*	(iii) CD	52.0	18.0	3.40
1972	64890 (69253)**	51.2 (50.0)**	3.6 (3.5)**	1968-1969[c] (NIS)	39.0	-	-
				1968-1971[d] (PGS)	37.0	11.0	2.60

Source : Mohammad Afzal, "The Population of Pakistan", The Pakistan Institute of Development Economics-Islamabad 1974.

Notes : * : Adjusted for underenumeration in 1961 Census by Pakistan Technical sub-committee in 1968.

** : Adjusted for 6.3% underenumberation according to Census Evaluation Survey 1974.

a : For the Years 1901-1940, the information pertains to British India.

b : PGE : A Population Growth Estimation project executed during 1962-65 to estimate the vital rates on the basis of data collected from selected sample areas. It employed dual system of data collection: a) Longitudinal or continuous registration (LR) and b) Cross Sectional or periodic surveys (CS). Rates were computed on the basis of these and additional estimate was made by applying Chandra-Deming (CD) method to adjust for the events missed by both the systems (LR & CS).

c : NIS-- National Impact Survey, 1968.

d : Population Growth Survey 1968-71.

APPENDIX TABLE 2

PERCENTAGE DISTRIBUTION OF POPULATION BY AGE GROUP
1951, 1961 AND 1972 CENSUS

Age Group	1951	1961	1972
0-9	26.88	32.80	31.29
10-19	28.20	18.64	21.08
20-29	14.65	15.47	14.75
30-39	10.41	11.82	11.77
40-49	8.22	8.70	8.63
50-59	5.96	5.73	5.60
60+	5.68	6.85	6.90

APPENDIX TABLE NO : 3

DECOMPOSITION OF CHANGES IN TOTAL ECONOMICALLY ACTIVE POPULATION 1961-1973

Age / Sex		Changes in Total Economically Active population (000)	Changes due to		Percentage Distribution		
			Population growth	Changes in Activity rate	Total Change	Changes due to population growth	Changes due to Activity rate
10 years and over (Both Sexes)		6999	7621	-622	54.8	58.9	-4.1
10 - 14	Male	968	919	49	102.8	100.0	2.8
	Female	287	87	200	357.0	238.0	20.0
15 - 19	Male	722	866	-144	52.9	59.9	-7.0
	Female	83	58	25	67.5	54.3	13.8
20 - 24	Male	597	608	-11	41.5	42.5	-1.0
	Female	78	54	24	56.11	44.5	12.4
25 - 34	Male	1133	1065	68	41.45	39.7	1.7
	Female	45	118	-73	15.95	35.0	-19.1
35 - 44	Male	1123	1045	78	54.91	52.4	2.5
	Female	33	130	-97	15.50	44.0	-29.0
45 - 54	Male	937	911	26	59.9	58.5	1.0
	Female	26	96	-70	16.8	44.8	-28.0
55 - 59	Male	178	179	-1	43.6	43.6	-
	Female	10	29	-19	27.7	57.0	-30.0
60+	Male	1423	890	533	113.0	20.0	93.0
	Female	61	46	15	66.0	56.0	10.8

APPENDIX TABLE NO : 4

FAROOQ'S MULTIPLE REGRESSION EQUATIONS EXPLAINING MALE ACTIVITY RATE IN PAKISTAN (45 DISTRICTS)

Dependent Variable	Independent Variable									
	Urbanization	% employees in labour force	Male Non-agriculture Industry Mixed Index	Males attending school	Male immigration rate	Male Net-in-migration	% Nuclear families	Constant	R^2	SE
Equation No. 1										
B		-0.091	0.447	-0.517	0.158	0.057	-0.214	26.619	0.526	2.58
t		1.79*	1.06	2.71**	3.50**	1.75*	3.21**			
Equation No. IIa										
B		-0.172	0.666	-0.439	0.136	0.055	-0.198	-6.095	0.554	2.53
t		2.44*	1.57+	2.27*	2.91**	1.71*	3.00**			
Equation No. III										
B	-0.163		0.490	-0.848	0.170	0.092	-0.178	50.434	0.648	3.12
t	3.64**		1.09	3.58**	2.84**	2.28*	2.21*			
Equation No. IVa										
B	-0.251		0.581	-0.719	0.157	0.090	-0.162	42.505	0.701	2.91
t	4.69**		1.44+	3.18**	2.78**	2.41*	2.15*			

Note : R^2 in all the tables is adjusted R^2 for degrees of freedom.

(a) Excluding Karachi district

* Significant at the 5 percent level

** Significant at the 1 percent level

\+ Significant at the 10 percent level

Equation III and IV Multiple Regression Equation Explaining Male Refined Activity Rate.

APPENDIX TABLE NO : 5

FAROOQ'S MULTIPLE REGRESSION EQUATIONS EXPLAINING FEMALE ACTIVITY RATE IN PAKISTAN (45 DISTRICTS)

Dependent Variable	Independent Variable						R^2	SE
	% Employees in Labour Force	Female Non-Agriculture Industry Mixed Index	Female Literacy Rate	Female Immigration Rate	Percentage Females Married	Percentage Nuclear Families		
Equation No. I								
B	-0.116	1.584	0.332	-0.158	0.186	-0.299	0.403	4.42
t	0.80	2.05*	1.05	1.56s	2.28*	2.97**		
Equation No. II								
B	-0.321		0.737	-0.207	0.283	-0.214	0.339	4.60
t	2.96**		2.86**	2.03*	4.07**	2.25*		
Equation No. III								
B	-0.173	2.322	0.479	-0.234	0.300	-0.463	0.402	6.76
t	0.78	1.96s	0.99	1.52s	2.40*	3.02**		
Equation No IV								
B	-0.474		1.074	-0.307	0.442	-0.339	0.342	7.00
t	2.87**		2.74**	1.98**	4.18**	2.34*		

* Significant at 5 percent level

** Significant at 1 percent level

s Significant at 10 percent level.

APPENDIX TABLE NO : 6

IRFAN'S REGRESSION EQUATIONS EXPLAINING CHILD LABOUR FORCE IN PAKISTAN

No. of Equation	Dependent Variable	Independent Variables										
		Percentage of unpaid family helper Agricultural Labour force (Both sex)	Percentage of landless labour force in agriculture labour force (both sexes)	Percentage of school going children aged 10-14 (both sexes)	Average family size	Average Size of farm	Percapita income(RS) agricultural and livestock	Female participation rate (Refine)	% of urban Population	R^2	Df	f
	Constant											
I	Labour force Participation of 10-14 at Distt. level	1.04577	+0.15786 (1.77)*		-0.32 (4.28)***	+1.59 (2.39)**	+0.12054 (1.97)*	0.11 (3.62) ***	-0.13 (2.15)**	0.73632	38	21.47767
II		3.44131	+0.34632 (3.28)***	+0.05228 (1.97)*	-0.37 (5.43)***		-0.027 (0.42)	0.077 (2.34)**	-0.129 (1.98)*	0.71927	38	19.78893

Source : 1. Child Labour in Pakistan by Mohammad Irfan and Shahnaz Hamid
2. Figures in parenthesis show '$' values

* Significant at 5 percent
** Significant at 2.5 percent
*** Significant at 1 percent.

APPENDIX TABLE : 7

MOHAMMAD ALI KHAN'S TWO STAGE LEAST SQUARE ESTIMATES FOR PAKISTANI WOMEN AGED 35-49 YEARS WHO WANT NO MORE CHILDREN (URBAN,RURAL)

Sample	Intercept	Literate wife	Education of husband	House Ownership	Land ownership	Age of Wife	Nuclear family	Income adequate	Wife Urban	Number of children less than 5 years age	Current monthly income	Number of live birth	R^2
269. Observation All Pakistan	.35	-.11 (.20)	-.12 (.15)	-.06 (.08)	-.25* (.07)	.08 (.08)	.09 (.06)	-.14 (.09)	0.9 (.15)	.11 (.09)	-.30 (.36)	-.18 (.10)	.1239
124. Observation Urban/Pakistan.	-.13	-.11 (.23)	-.11 (.23)	-	-.02 (.11)	.12 (.14)	.22* (.10)	-.01 (.11)	-	.10 (.16)	.04 (.37)	-.16 (.20)	.0551
145. Observation Rural/Pakistan.	.75	.08 (.09)	.06 (.09)	-	-.21 (.11)	-.01 (.12)	+.05 (.09)	-.18 (.13)	-	.08 (.11)	-.14 (.18)	-.08 (.14)	.1818

1. Figures inside the perenthesis are standard errors.
2. Estimates presented all are standardized regression coefficients
3. * Significant at less than 10% level.

APPENDIX TABLE NO: 8

TREND GROWTH RATE OF EMPLOYMENT AND PRODUCTIVITY
1961-72

Sector	Employment	Productivity
Agriculture	0.0257	0.0217
Manufacturing	0.04043	0.0675
Construction	0.1189	-0.0447
Commerce & Trade	0.07409	0.0113
Transport & Communication	0.1128	-0.0340

APPENDIX TABLE NO: 9

REGRESSION RESULTS OF NULTY & IRFAN

Sector	Nulty	Irfan
Agriculture	E= -1215+1.245 VA	E= 4781 + 0.55 VA
Manufac-turing	E= 931+ .457 VA	E= 1122 + 0.38 VA
Trade	E= -136+ .505 VA	E= -172 + 0.53 VA
Transport & Communication	E= -378+ .75 VA	E= -334 + 0.69 VA
Construction	- - -	E= -203 + 0.71 VA

Note:- Nulty's regressions pertained to few years lying in 1951-61 period while Irfan's regression cover the period of 1961-72.

2.(E) Employment in thousand while (VA) value added in Million 1959-60 prices.

APPENDIX TABLE NO : 10

UNDER EMPLOYMENT AS PERCENT OF EMPLOYED LABOUR BY DIFFERENT HOURS CRITERIA 1964 - 70

Year	ALL AREAS				URBAN AREAS				RURAL AREAS			
	Less than 25 Hours	Less than 35 Hours	Less than 42 Hours	Less than 49 Hours	Less than 25 Hours	Less than 35 Hours	Less than 42 Hours	Less than 49 Hours	Less than 25 Hours	Less than 35 Hours	Less than 42 Hours	Less than 49 Hours
1964	2.00	6.30	14.87	30.8	1.29	4.36	11.69	24.9	2.19	6.81	15.70	32.41
1965 Jan-Sep.	3.51	7.25	26.32	42.9	1.58	3.26	20.54	42.55	4.07	8.40	27.98	43.00
1966-67	2.46	8.14	27.97	42.97	2.07	6.20	24.67	46.35	2.58	8.77	29.02	41.92
1967-68	2.42	7.38	29.66	45.75	1.56	4.63	24.94	50.97	2.70	8.28	31.20	44.06
1968-69	2.57	13.24	34.87	49.45	1.67	26.31	42.43	61.74	3.06	9.56	32.64	45.99
1969-70	2.91	7.62	32.45	49.47	1.36	3.42	23.96	50.87	2.36	8.85	34.49	49.04
1970-71	2.62	6.59	29.02	46.33	1.28	3.45	22.68	51.88	2.98	7.47	30.77	44.78
1971-72	3.29	7.74	33.07	50.7	1.57	3.68	25.28	54.42	3.75	8.80	35.09	49.72
1974-75	1.42	4.28	22.82	29.41	0.8	2.24	15.23	54.27	1.66	5.03	25.42	47.68

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