Economically Active Children and Home-care Children- How much They Differ?

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Department of Economics
Islamia University
Bahawalpur-63100
www.iub.edu.pk

Rana Ejaz Ali Khan

Assistant Professor,
Department of Economics
Islamia University Bahawalpur. (Pakistan).
ranaejazalikhan@yahoo.com
Phone: 92 621 9250324 Ext. 344
Mobile: 0300 7803622

and

Karamat Ali

Professor of Economics
Vice Chancellor
Bahauddin Zakarya University Multan (Pakistan).

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Abstract: Over the issue of the difference or otherwise between economically active children and home-care children, there are two competing claims by researchers. One holds that economically active children and home-care children are the same in that both groups of children have identical determinants, while the other contradicts this view. Using the probit analysis for both groups of children in Pakistan, our study compares the determinants of the two groups to check whether they have same determining factors and ultimately are the same or they differ with each other in this matter. It is found that a significant number of explanatory variables have shown opposite effect on economic activity of children and home-care activity of children. So it is concluded that economically active children and home-care children are two different groups which cannot be merged into each other. However, policies focused on elimination of economically active children trickle down the effect to home-care children as some determining factors of both groups are the same.

1. Introduction

The volume of child labor and estimation of its determinants varies depending on how the child labor is defined. In empirical literature on child labor, there is a tendency to narrow the discussion and analysis to economically active children. Economic activity typically includes both work for wages and work in a production process in the household that results in marketable output. So only “economically active” children are classified as child laborers. A more conservative definition of child labor dictates that only the work for wages outside the home should be considered as child labor. The presumption behind

this interpretation is that any labor inside the home, or in the family's economic enterprises, is directly monitored (or monitorable) by parents and its arduousness is internalized.

On the other hand, the broader definition of child labor tends to include time spent on home-care (non-monetized work inside or outside the home other than household enterprises, for example, household chores like water collecting, caring for younger siblings) in addition to economic activity of children[1] (both work for wages and in household enterprise). The presumption here is that home-care can be as hard as economic activity.[2] As for as the opportunity cost of schooling is concerned, little attention is paid to home-care, rather most authors consider only the forgone wages/income from economic activity of children as the opportunity cost of schooling. However, it is widely known that home-care constitutes a large part of children's work---especially that of girls (Grootaert and Patrinos 1999 for cross-country data; Biggeri et. al. 2003 for cross-country data). In Pakistan, 82 percent of girls in the age group of 10-14 years are neither attending school nor going for paid-work but are involved in home-care activity (Burki and Shahnaz 2001 for Pakistan). In a number of countries, including India, Bangladesh and Pakistan, home-care children outnumber the economically active children (Biggeri, et. al. 2003 for India and Bangladesh; FBS 1996 for Pakistan) At the first glance, they appear to be idle as they report that they neither work nor are in school.[3]

[1] It is consistently accepted by all the researchers that both activities (economic activity and home-care activity) are undesirable from the point of view of human resource development

[2] The home-care activity is bad for children in another perspective, i.e. it detracts the children from earning and skill acquirement along with school deportation.

[3] Cartwright and Patrinos (1999) categorized the children who are not formally employed as "home-care". Cigno and Rosati (2002) termed them "no-where children" and Biggeri et. al. (2003) and Deb and Rosati (2004) called them "idle" children.

These children may rarely be idle, though they do not directly contribute to family budget, but their labor is important input to household production. These children take up tasks at home to relieve the adults to join the workforce (Duraisamy 2000). However, Biggeri et. al. (2003) concluded that some home-care children do nothing because of their health or because they are unable to find work.[4]

A number of studies (See for instance Chaudhri et. al. 1999 for India; Illahi 2001 for Peru; Duraisamy 2000 for India; Bunch and Verner 2000 for Ghana) have argued for the merger of economic activity and home-care activity of children and making the definition of child labor broader.[5] By not doing so, one runs the risk of overlooking the effects of children's time use (Illahi 2001). Blunch and Verner (2000) stressed to analyze harmful child labor---that hinders schooling--- and include home-care activity in harmful child labor. Cigno and Rosati (2002) found that the effect of child's sex, age, household composition, and mother's education on child laborers is of the same kind for home-care children, so the two groups may be the same thing, or at least, the home-care children category covers a substantial proportion of economically active children.

On the other hand some researchers (See for instance, Ahmed 1999) explained that adding different kinds of child labor is adding apples and oranges. That is why a large variety of research (See Duraisamy 2000 for India; Ray 2000a for Peru and Pakistan) has analyzed the different categories of activities of children by simultaneous or sequential decision making through probit and logit models.

[4] Some reporting errors or omissions may occur in the survey for reasons like the parents falsely reporting their children as idle because the children are engaged in illegal or dangerous activities.
[5] Ray (2000) included the domestic work in child labor and termed it as relaxed treatment of child labor

In this paper we are going to estimate the volume of economically active children and home-care children in Pakistan, and analyze how much the determinants of economically active children and home-care children are different from each other. If the determinants are the same in magnitude and direction, then economically active children and home-care children may be targeted by the same policy implementation.[6]

2. Hypothesis

The hypothesis for the study is "the determinants of economically active children and home-care children are the same" so they may be targeted by the same policy.

3. Definitions, Data Collection and Methodology

Researchers have defined economic activity of children in different ways, keeping in mind the age of the child and the nature of the work. We have defined children as the individuals in the age cohort of 5-15 years. In the economic literature economic activity of children is measured by working hours of children (See for instance Ray 2001) as a continuous variable. Another proxy is the wage rate of children. Some econometric models have used a binary variable to represent the economic activity of children, i.e. whether the child participate in economic activity or not. Before going to define economic activity for the present study, it is important from the policy point of view to evaluate whether it is child's work or the amount of time that he/she works that affects human capital accumulation. If working hours had only a negligible effect on school

[6] Both the groups can be merged only on the basis of determining factors, but they are entirely different regarding the effect of their activity on children (child's health, development and productivity), and their households and economy

participation, then school attendance rather than work would be the correct policy target (at least in terms of human capital formation). On the other hand, if working hours strongly affect human capital accumulation, then child labor also needs to be monitored. As the working hours, whether they are less than 2-3 hours daily or more than 2-3 hours affects the leisure of the children, so it seems better to define child labor on the basis of their labor force participation not working hours. In the present study conomically active children (or labor force participating children) are defined as the children involved in wage employment, household enterprises, household employment[7] or seasonal agricultural work without schooling irrespective of their wages or number of hours. Home-care children are defined as the children involved in the activity inside or outside their home without remuneration other than work at household enterprise, and children reported as doing nothing, or no-working and no-schooling.

Data is collected by cluster sample technique from the two districts of Pakistan, i.e. Pakpattan and Faisalabad. The use of primary data makes the present study distinct from previous studies. The sample observations of the present study consist of four thousand households from rural and urban areas. Those households were included in the survey, which have at least one economically active child or home-care child.

The survey collected data about the particulars of household members (children, head of household, parents of the children) and household. The two groups of children, i.e. economically active and home-care children were segregated. Using the data set, we

[7] Household employment of children refers the situation where whole of the household work at piece rate and head of household receives wage

examined the determinants in these two categories of children separately by using a series of probit models. In the first regression, economic activity of child (ECO) is a function of several explanatory variables. The dependent variable can take only two binary values: 1 if the child is economically active and 0 if she/he is not. The paper estimated non-linear maximum likelihood for the normal probability (probit model). The function is

$$ECO = f(X_1 \ldots\ldots X_n) \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

X_1 …… X_n represent variables of child characteristics, head of household characteristics, parent characteristics, and household characteristics leading to affect the child' decision of economic activity. For the second regression the model is the same, where home-care activity of child (HOM) is a function of the same explanatory variables. The dependent variable can take only two binary values: 1 if the child is doing home-care and 0 if she/he is not doing. The function is

$$HOM = f(X_1 \ldots\ldots\ldots\ldots X_n) \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The definitions of dependant and explanatory variables are presented in table-1.

Table-1. Definitions of Dependent and Explanatory Variables Used in the Probit Model

VARIABLES	DEFINITIONS
Dependent Variables	
ECO (Economic activity of child)	• 1 if child is economically active, 0 otherwise
HOM (Home-care activity of child)	• 1 if child is involved in home-care activity, 0 otherwise
Independent Variables	
	Child Characteristics
BORD (Birth-order of child)	• Birth-order of child in his/her brothers and sisters
CGEN (Gender of child)	• 1 if child is male, 0 otherwise
CAGE515 (Child's age)	• Child's age in completed years (for 5-15 years age group)

CAGESQ515 (Child's age squared)	• Child's age squared (for 5-15 years age group)
CEDU (Child's education)	• Child's education in completed years

Head of household Characteristics

HGEN (Gender of the head of household)	• 1 if the head of household is male, 0 otherwise
HAGE (Head of household's age)	• Head of household's age in completed years
HAGESQ (Head of household's age squared)	• Head of household's age squared in completed years
HEDU (Head of the household's education)	• Head of the household's completed years of education
HLIT (Head of the household's literacy status)	• 1 if the head of the household is literate, 0 otherwise
Hemp (Head of household's employment)	• 1 If head of household is employed, 0 otherwise
HY[8] (Head of household's income)	• Head of household's income per month (in 000 Rupees)

Parent characteristics

FEDU (Father's education)	• Father's education in completed years of education
FLIT (Father's literacy status)	• 1 if father is literate, 0 otherwise
FEMP (Father' employment)	• 1 if father is employed, 0 otherwise
FY (Father's income)	• Father's income per month (in 000 Rupees)
MEDU (Mother's education)	• Mother's completed years of education
MLIT (Mother's literacy status)	• 1 if mother is literate, 0 otherwise
MEMP (Mother's employment)	• 1 if mother is employed, 0 otherwise
MY (Mother's income)	• Mother's income per month (in 000 Rupees)

Household Characteristics

ASST (Household's ownership of assets)	• 1 if the household owns of assets, 0 otherwise
HHY (Household's total income)	• Household's total income per month (in 000 Rupees)
HHPCY (Household's per capita Income)	• Household's per capita income (in 00 Rupees) per month
HPOVTY[9] (Household's poverty status)	• 1 if household is below poverty line, otherwise 0
HHSIZ (Household/family size)	• Number of household/family members
HHSSIZ (Household/family's small family)	• 1 if household members are less or equal to 5, otherwise 0
CHILD015	• Number of children up to 15 years of age in the household
CMFRATIO	• Male to female ratio of children in the household
CHILD04	• Number of children up to 4 years of age in the household
CHILD515	• Number of children (5-15 years) in the household
CHILD16	• Number siblings (16 years or above) in the household

[8] The explanatory variables like the education of head of household, employment status of head of household and income level of head of household are likely to be endogenous and thus may result in biased estimates. We will apply the sensitivity test for the robustness of the results. Same test will be applied for employment of father and mother, and household income or poverty status.

[9] The official Poverty Line of Pakistan is Rs.673.54 per capita per month (CRPRID 2002:297)

LOC (Locality of the household)	• 1 if the household is urban, 0 otherwise

4. Results and Discussion

4.1 Magnitude of Economically Active Children and Home-care Children

The volume of economically active children and home-care children is estimated for two age-groups, i.e. primary school-age group (5-10 years) and secondary school-age group (11-15 years). The division of age groups is made due to two reasons, (i) to see what is the volume of the two categories in the age groups of different school levels, (ii) to see what change occurs in the two categories in higher age groups. However, econometric analysis has been done for only 5-15 years age group. The two categories of children vary with the child's age and gender. The boys and girls are involved in different ratios in two categories, and age groups. In fact they have been differently affected by the activities. The magnitude of children in two categories by age and sex is shown in table-2. The table shows that higher ratio of children (5-15 years age group) is engaged in home-care activity and it is almost three times more than the economically active children (See, Duraisamy 2000 for such type of results for India; FBS 1996 for Pakistan; Biggeri et. al. 2003 for India and Bangladesh). Excluding the home-care children from policy formulation for school enrolment can make the policy prescription biased. As the children in this category have lower opportunity cost of schooling in monetary terms, so it is comparatively easier to send them school. Burki and Shahnaz (2003) suggested that, if increasing the school enrolment rate for children in the country and eliminating gender bias are the objectives of policy, the children especially girls, who are neither attending school nor going to work should get preference of the policy makers.

Table-2. Economically Active Children and Home-care Children, by Age and Sex (Percentage)

CATEGORIES	AGE GROUP (YEARS)	MALE	FEMALE	OVERALL
Economically Active Children	5-10	2.17	1.18	3.35
	11-15	7.12	2.25	9.37
	5-15	9.29	3.43	12.72
Home-Care Children	5-10	8.06	13.84	21.9
	11-15	6.04	7.55	12.59
	5-15	14.21	20.39	34.49

There is a division of labor by gender in two categories of children. In the age group of 5-15 years, more male children are involved in economic activity than female children, but in home-care category girls do more home-care than boys do (See also, Edmond and Turk 2002 for Vietnam). There are competing views on why time-use by children differs by gender. One can argue that social roles and norms dictate the segregation of activities based on gender---girls mostly do household chores and boys engage themselves in income-generating activities. The other reason might be that differences in time-use by gender can be explained by differences in constraints that boys and girls face. An extreme position in this regard is that work activities are divided along the lines of comparative advantage---boys are better at market work and girls at home-care.

For the overall children, economic activity increases and home-care activity slightly decreases in higher age group (See Biggeri et. al. 2003 for home-care children for cross-country data). For the boys and girls separately, the economic activity increases and home-care activity decreases in higher age groups.

4.2 Econometric estimates of Economically Active Children and Home-care Children

Summary statistics (mean and standard deviation) and probability derivatives of economically active children and home-care children are shown in table-3. In the columns of mean and standard deviation the figures in the parenthesis are of standard deviations. In the columns of probability derivative marginal probabilities, estimates and t-statistics are shown. The probability derivatives are in bold letters and t-statistics are shown in parenthesis. The probability derivative show the marginal changes in the probabilities of economic activity of children and home-care activity of children, when the corresponding child, head of household, parents and household characteristics change by one unit. Looking at the results we find that 93 percent of the variation in the economic activity of children is accounted for by the explanatory variables. For the children involved in home-care activity 87 percent of the variation is accounted for by the explanatory variables. Majority of the results are consistent with the theoretical implications of economically active children and home-care children.

Table-3 Summary Statistics (Mean and SD) and Probability Derivative of Children (5-15 Years)

Variables	Economically active children		Home-care children	
	Mean and SD	Probability Derivative	Mean and SD	Probability Derivative
CONSTANT	-	**-0.9007** -4.4066 [-1.4749]	-	**-0.8286** -2.9843 [-1.9452]
		Child Characteristics		
BORD	2.1186 (1.2468)	**-0.0172** -0-0505 (-1.5307)*	2.6307 (1.3757)	**0.0109** 0.5453 (1.3067)*
CGEN	0.5593 (0.5007)	**0.0385** -0.8250 (1.7140)**	0.4461 (0.5009)	**-0.0968** -0.4187 (-1.7486)**
CAGE515	11.0847 (2.7435)	**0.0857** 0.5427 (1.5235)*	8.6615 (3.4788)	**-0.1578** -0.9233 (-2.8016)**
CAGESQ515	130.2711 (56.7896)	**-0.0025** -0.0207 (-1.9430)**	86.9384 (67.7511)	**0.0085** 0.0430 (2.9817)**
CEDU	0.9235 (1.9681)	**-0.0423** -1.9325 (-3.3050)**	0.7254 (1.2371)	**-0.0714** 1.7999 (-3.7828)**
		Head of Household Characteristics		
HGEN	0.9931 (0.0078)	**0.0392** 1.1679 (1.3136)**	0.9846 (0.1420)	**-0.0132** -1.6266 (-1.6664)**
HAGE	45.4745 (9.4126)	**0.0106** 1.4081 (1.6842)**	41.9846 (9.1420)	**-0.0220** -1.0933 (-1.6814)**
HAGESQ	2155.03 (951.48)	**-0.1163** -1.3816 (-0.2261)	1845.00 (808.13)	**0.0091** 0.9271 (0.9098)
HEDU	0.6440 (1.4234)	**-0.1058** -5.2286 (-1.7058)**	0.9076 (2.4541)	**-0.1807** -3.5860 (-1.6714)**
HLIT	0.0672 (0.4654)	**-0.1872** -1.3145 (-1.3765)*	0.0462 (0.3778)	**-0.3941** -0.2841 (-1.3733)*
HEMP	0.9328 (0.4931)	**-0.1650** -1.1881 (-1.5153)*	0.9538 (0.3914)	**0.0944** 0.7852 (0.7943)
HY	1316.94 (941.96)	**-0.0016** -0.6815 (-1.5979)*	1521.53 (1189.99)	**0.6517** 0.3613 (0.2241)
		Parent Characteristics		

FEDU	0.6440	**-0.1538**	0.9076	**-0.2103**
	(1.4234)	-5.0293	(2.4541)	0.5462
		(-1.7280)**		(-1.6574)**
FLIT	0.0851	**-0.2982**	0.0577	**-0.1837**
	(0.3011)	-2.2258	(0.4526)	0.0629
		(-2.9712)**		(-1.7451)**
FEMP	0.5932	**-0.1100**	0.8307	**0.0069**
	(0.4954)	-0.5825	(0.3778)	0.2157
		(-0.2967)		(0.9641)
FY	1232.20	**0.0042**	1752.30	**-0.4478**
	(575.48)	0.0502	(991.85)	-0.7031
		(0.1936)		(-1.7259)**
MEDU	0.1186	**-0.0382**	0.1236	**-0.0202**
	(0.9113)	-0.1216	(0.8321)	-0.1034
		(-1.8414)**		(-1.7024)**
MLIT	0.0165	**-0.3870**	0.0463	**-0.1042**
	(0.1301)	-1.6253	(0.2114)	-1.3765
		(-1.5341)*		(-0.0977)
MEMP	0.3610	**-0.1145**	0.1307	**-0.2175**
	-0.5559	(-1.7276)**	(0.3778)	-0.2478
	(0.4774)			(-1.3065)*
MY	616.94	**0.0001**	707.69	**-0.2952**
	(621.77)	0.1224	(698.95)	-0.1476
		(2.0916)**		(-1.6838)**
		Household Characteristics		
ASST	0.5254	**-0.0411**	0.5692	**0.0447**
	(0.5036)	-0.4607	(0.4990)	0.2623
		(-1.8093)**		(1.8851)**
HHY	2123.72	**-0.0133**	2483.07	**0.4098**
	(1343.99)	-1.7412	(1611.34)	1.6201
		(-3.1649)**		(1.6507)**
HHPCY	296.93	**-0.2101**	382.06	**-0.0012**
	(214.90)	-0.6048	(245.84)	-0.2909
		(-2.8129)**		(-1.7545)**
HPOVTY	0.9322	**0.1997**	0.9076	**0.6561**
	(0.2535)	0.9215	(0.2917)	1.3026
		(1.5793)*		(1.0085)
HHSIZ	7.4915	**0.0172**	7.5230	**0.0725**
	(1.7555)	0.0983	(2.0999)	0.1948
		(1.2850)*		(1.2903)*
HHSSIZ	0.2033	**-0.0167**	0.2000	**0.2773**
	(0.4464)	-0.2332	(0.4401)	0.4676
		(-1.6478)**		(0.6156)
CHILD015	4.5423	**-0.0224**	4.6461	**0.0756**
	(1.6228)	-0.0917	(1.8576)	0.5096
		(-1.1813)		(1.9880)**
CMFRATIO	0.9861	**0.0263**	0.9974	**-0.0285**
	(0.9745)	2.7354	(0.9857)	-1.8124
		(1.3984)*		(-1.6391)*
CHILD04	0.5423	**-0.0224**	0.8307	**0.1257**
	(0.6777)	-0.1446	(0.8398)	0.4019
		(-0.2679)		(1.6500)**
CHILD515	3.8474	**0.3031**	3.7076	**0.1985**

	(1.2568)	0.0492	(1.4221)	0.6478
		(2.2077)**		(1.3714)*
CHILD16	1.0169	**-0.2743**	0.7076	**-0.1058**
	(1.2797)	0.0474	(1.0857)	-0.3654
		(-1.5832)*		(-2.4520)**
LOC	0.6779	**-0.0936**	0.4153	**-0.0797**
	(0.4712)	-0.5592	(0.4966)	-0.0513
		(-1.6281)*		(-2.0357)**
Log of Likelihood Function		-1781.12		-3786
Number of Observation		1965		5175
R-Squared		0.7352		0.6989
Percent Correct Prediction		0.9336		0.8789

** Indicates significant at 5 percent level and * indicates significant at 10 percent level

4.2.1 Child Characteristics

Estimates of probit model for Pakistan shows that economic activity of the child is negatively related to the birth-order of the child, i.e. the elder the child among brothers and sisters, the more likely she/he is to join labor force. It may be due to the fact that, older children have higher earning abilities, so they are more likely to be economically active (See also Emerson and Souza 2002 for Brazil). Ali and Hamid (1999 for urban Pakistan) narrated that in poor child labor producing households, the elder children have to share the burden of living. It supports the notion that older child is more likely to work because she/he is likely to earn more. On the other hand home-care activity of child is positively associated with birth-order. The elder child in the household is less likely to do home-care. The explanation is that younger children are less productive in labor market so they remain at home for home-care activities. The first ever parameter in the present analysis shows opposite effect on two groups of children, that is, the two groups differ from each other.

We have included the age of the child (for the age group of 5-15 years) in the model as explanatory variable to see how the economic activity and home-care activity of child is affected by increase in age. It is found that economic activity of the child increases with child age (See also Maitra and Ray 2002 for Pakistani urban and rural data). But the home-care activity of child decreases with age. It is corroborated by summary statistics, which depicted that the mean age of economically active children is higher than home-care children. Furthermore, economic activity increases in higher age group and home-care activity decreases in that age group (See table-2). So the age of the child has also shown opposite effect on two groups of children which negates the finding by Cigno and Rosati (2002 for India).

Gender of the child is hypothesized to be important for economic activity and home-care activity of children because of potential differences in productivity at alternative tasks, but especially because of social norms about appropriate roles for boys and girls. We have estimated that the boys are more likely to be engaged in economic activity than girls (See also Ray 2000a for Peru and Pakistan). On the other hand, girls are more likely to do home-care as compared to boys (See also Ray 2000a; Biggeri et. al. for cross-country data). The result is corroborated by the magnitude of economically active children and home-care children (See table-2). It supports the notion that girls are more likely to help their mothers in household and child-care, and boys are more likely to be allowed to venture alone outside the home. Ray (2000b:14) noted that boys have more earning opportunities than girls, so they are more likely to be engaged in paid labor. The gender of the child has shown opposite effect on the two groups of children which contradicts

the Cigno and Rosati's (2002 for India) results, that gender of the child has the same effect on economically active children and home-care children.

Educational level of the child has shown negative effect on economic activity as well as home-care activity of children. Each additional year of education of child decreases the probability of his/her participation in labor force by 4.2 percent, and home-care activity by 7.1 percent. Economically active and home-care activity both decrease the educational opportunities of the child, so a trade-off occurs between both of these activities and child schooling. Educational level of the child is the first-ever explanatory variable in our analysis which has shown the change in economic activity and home-care activity in the same direction, though the effect of home-care activity is almost 3 percentage points more than economic activity. The policies to enhance school participation of children will affect both groups positively and home-care children will be more likely to go to school than economically active children. In this regard, both groups seem to be the same.

4.2.2 Head of Household Characteristics

The female-headed household reflects household poverty (Sakellariou and Lall 1999), so children from female-headed households are more likely to be involved in economic activity to support the family and less likely to do home-care. But our study shows an interesting relationship between the gender of the head of household and both activities of children, i.e. children from female-headed households are less likely to be economically active and more likely to do home-care. Though the results are strange but they explain that two groups are not the same. The explanation may be that female-

headed households lack physical capital and social capital (social contacts), which is necessary to engage the child in economic activity, so children are less likely to participate in economic activity in these households. On the other hand due to poverty female-headed households cannot afford schooling consequently children are more likely to do home-care.

The life cycle of the head of the household has shown a positive effect on economic activity but negative effect on home-care activity, i.e. the more the age of head of household, the more likely it is for the child to participate in labor force and less likely to do home-care. Here again the determining factors of the two groups are not the same.

Educational level (number of years of education as a continuous variable) of the head of household has shown a negative effect on child's economic activity and home-care activity. On average, one additional year of education of head of household decreases the probability of child's economic activity by 10.5 percent (See also Tzannatos 1998 for Thailand; Sakellariou and Lall 1999 for Philippines) and child's home-care activity by 18 percent. Similarly, children from literate[10] head of households (literacy status of head of household as a binary variable) are less likely to be economically active and less likely to do home-care.

[10] The official definition of a literate individual in Pakistan is "one who can read a news paper and write a simple letter". The literacy so defined cannot be accepted as "functional literacy". So we defined the adult literacy (for head of household, father, and mother) as educational endowment of those individuals who have completed at least five years of formal education.

Some studies have used the employment status and educational level of head of household (or father and mother) as a proxy for financial status (or income level) of the individual due to the problem of endogeneity of explanatory variables [See for instance Burki and Shahnaz 2003]. To overcome the problem we have used a sensitivity test, i.e. by including and excluding the variable of HY (head of household's income) the econometric estimates remained unchanged. So we have included the head of household's income as an explanatory variable in the analysis. In our analysis the income level and employment status of the head of household have shown a negative effect on economic activity of children but both explanatory variables have shown insignificant results for home-care activity of children.

4.2.3 Parent Characteristics

The educational level of parents plays a key role in determining children activities. We have used years of education of the father (as a continuous variable) as a regressor and found that an incremental change in the average years of education of father decreases the economic activity of children by 15.3 percent, while literacy status of father (as a binary variable) decreases the economic activity of children by 29 percent. Both the regressors (educational level of father and literacy status of father) have also shown negative effect on home-care activity of children. That is, the two categories of children are the same. An increase in the education of father will lower the labor force participation of children as well as home-care activity of children.

We have found that economic activity of children and home-care activity are negatively related to the mother's level of education (number of years of education as a continuous variable) (See also Ray 2000b:13 for India; Ray 2000a for Peru and Pakistan; Cigno and Rosati 2002 for rural India for only economic activity of children). An additional year of education of mother decreases the probability of economic activity of children by 3.8 percent, and home-care activity by 2 percent. The literacy status of mother (as a binary variable) also negatively affects the economic activity and home-care activity of children. The children from literate mothers are 38 percent less likely to opt for economic activity and 10 percent less likely to do home-care.

We have used a binary variable to testify the impact of parent's employment on economic activity and home-care activity of children and found that father's employment has no significant impact on economic activity of children and home-care activity of children, but the children from employed mothers are 11 percent less likely to work and 21.7 percent less likely to do home-care. It means mother's employment has same kind of effect on economic activity of children and home-care activity of children. It is notable that among parents, mother's employment is more important for the policy formulation.

It is found that mother's income[11] has shown positive impact on economic activity of children and negative impact on home-care activity of children. Irrespective of the explanations of their reverse impact the results show that the economically active children and home-care children are two different groups by their determining factors.

[11] We have included the father's and mother's income as explanatory variables in the model after having sensitivity test like that of head of household's income.

4.2.4 Household Characteristics

Household assets play an important role in the children's activities. The present study finds that the ownership of assets has a negative impact on the decision of the parents to involve their children in economic activity but it has a positive impact on home-care activity of children. The two groups of children differ from each other, and the explanation may be that households with assets have better financial status, so they need not send their children to work. On the other hand households with assets may find low returns on work by children, and thus they may leave the child idle.

It is further estimated by the present study that economic activity of children is negatively affected by household income. A marginal increase in household income (one thousand rupees) may decrease economic activity by 1.3 percent. Surprisingly, the household income positively affects the home-care activity of children. Here, again the two groups differ from each other.

We find that poverty proxied by per capita household income (as a dummy variable) impacts the economic activity and home-care activity of the children positively, i.e. children from lower per capita household income (poor) are more likely to be economically active and do home-care. The possible explanation may be that poor households send their children to work to support the family income. Poverty increases the home-care activity in a combination of circumstances, where the returns on work are

low and poor households are too poor to involve their children in household enterprises, so they think it would be more efficient to keep the child do home-care.

We have used a binary variable indicating the household poverty status to estimate the poverty effect on children activities. The binary variable represents whether or not the household falls in poverty line. Estimates from the model show that households living below poverty line are almost 20 percent more likely to engage their children in economic activity. On the other hand, household poverty has shown no significant effect on home-care activity of children while some studies (See for instance, Biggeri et. al. 2003) estimated that home-care children from households are more likely to do home-care.

The economic literature shows an important relationship between household size and activities of children like economic activity and home-care activity. It may be that large families increase the likelihood of the household being impoverished, and thus they need the additional income that a child can provide by participating in economic activity. It may also be that families increase the number of children/household size as a response to poverty, so that the family's income may be supplemented by involving some children in economic activity, or having them provide labor within the household enterprises. Either way the additional income may be supplied to the household. In our study, the propensity to be involved in economic activity by child is found positively related to the household size. An incremental change in the household size increases the probability of a child to be involved in economic activity by 1.7 percent. Moreover, the children from smaller

families (maximum of five members of household-as a binary variable) are 1.6 percent less likely to be engaged in economic activity (See also Maitra and Ray 2002:58 for rural Pakistani children; Ali and Hamid 1999 for urban Pakistan). The magnitude of such effect may be determined by at least four factors, i.e. the level of socioeconomic development; the level of social expenditures by the state; family norms (for instance, the effect of household size is weaker where extended family system exists); and phase of demographic transition (for instance, the effect of household size is stronger in later phase). The home-care activity is also positively related to the household size. An additional member in the household increases the probability of a child to do home-care by 7.2 percent. The smaller family size (as a binary variable) however has shown insignificant effect on home-care activity.

It is postulated that household composition has a strong impact on the activities of children like labor force participation and home-care. The present study finds that an increase in the number of children (up to 15 years of age) in the household has no significant effect on labor force participation of children but it increases the home-care activity (See also Chaudhri et. al. 1999 for India). It means that the two groups are not the same, and the fertility control policies would not affect the labor force participation of children but it would lower the home-care activity.

We have found that an increase in the number of pre-school children (up to 4 years of age) in the household raises the probability of economic activity of school-age children (5-15 year). The explanation is that an increase in pre-school children is equivalent to a

lump-sum reduction in income (an income dilution effect) (See also Cigno and Rosati 2002 for India). Similarly, an increase in the pre-school children increases the probability for home-care activity. The explanation is, as the number of pre-school children increases, the domestic task of mothers also increases, so mothers in turn need help from the elder children, especially daughters, in baby-care. Anyhow, the two categories of children have the same direction of impact of explanatory variables but the explanations are different for both categories.

It is also found that households who have more number of children (5-15 years) in their households, more tend to choose both labor force participation and home-care activity for their children. An incremental change in the number of school-age children increases the probability of economic activity of children by 30 percent and home-care activity by 19 percent. The ratio of male to female children in school-age group represents the gender aspect. In the households where male children are more than female children, the economic activity is more likely to exist and home-care activity is less likely to exist. It reveals the notion that boys are more likely to be engaged in economic activity and girls are more likely to be engaged in home-care.

The probit estimation results show that a higher number of working-age children (>15 years) in the family reduces labor force participation of children by 27 percent and home-care activity of children by 10 percent. The explanation may be that in the Pakistani scenario the working-age children contribute to household income which ultimately reduces labor force participation of school-age children. On the other hand, the presence

of working-age children or prime-age children in the household reduces the demand for home-care by school-age children. Such type of activity is more pronounced in female siblings.

Rural-urban locality of the household has a significant impact on the decision of children to be economically active or to do home-care. We find that rural children are 9.3 percent more likely to participate in labor force and 7.9 percent in home-care (See also Ray 2000a). The rural communities in Pakistan generally suffer from social injustice, economic exploitation, deprivation, and landlessness. The situation of income and wealth distribution in rural areas is more discriminating. Poverty is more severe in rural areas of Pakistan as compared to their urban counterparts (ADB 2002:1). The growing marginalization and adult unemployment among rural population has contributed to an increase in economically active children and home-care children in rural areas.

5. Conclusion

In this paper we have investigated the effects of several factors on economic activity and home-care activity of the children to find the clue that, whether the two groups of children are same or different. The conclusion of the paper is as follows:

i) The hypothesis (the determining factors of economically active children and home-care children are of the same kind) is rejected on the basis that a significant number of explanatory variables have shown opposite effects on economic activity of children and home-care activity of children. For instance, birth-order of child, age of child, gender of

child, headship of household, life cycle of head of household, ownership of assets by household, and household income have shown opposite results for both activities.

ii) Some variables in the analysis have shown significant results for economic activity of children while insignificant for home-care activity of children and vice versa. The variables are as follows: income level of head of household, employment status of head of household, employment status of father, household poverty status, smaller family size (binary variable), number of children (up to 15 years of age), and male to female ratio of children. They also support the rejection of hypothesis.

iii) On the other hand, some explanatory variables have shown the effect on economic activity and home-care activity in the same direction---for instance, educational level of child, educational level of head of household, literacy status of head of household, educational level of father, literacy status of father, mother's level of education, mother's employment, household per capita income, household size, number of pre-school children in the household, number of school-age children, number of prime-age children, and locality of household---which supports the acceptance of hypothesis. However, on balance, the study rejects the hypothesis by assuming that all parameters have same weightage in the decision-making of economic activity and home-care activity of children.[12]

iv) On the rejection of the hypothesis, it is suggested that economically active children and home-care children cannot be merged into broader definition of child labor. It negates the Cigno and Rosati's (2002) finding that economically active children and home-care children are the same thing. It partially supports the other point of the same

[12] It is out of scope of present study to analyze which variables are more important or have comparatively greater weight in decision-making of economic activity and home-care. It needs further research.

study that home-care children contain a substantial proportion of economically active children.

v) The last but not the least is the conclusion that policies supporting the elimination of labor force participating children and enhancing the school participation have a larger trickle down effect on home-care children. Conversely, it may be taken that home-care children propagate the pool of labor force participating children.

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