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Labor Productivity of Home Based and Outdoor Working Women in Pakistan: An Implications from Human and Social Capital

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ABSTRACT

Women in Pakistan are significantly contributing to national economy but their work is undervalued and they are facing a seemingly invincible array of barriers which are preventing them to become more productive and empowered citizens. The current study aims to empirically analyse the impact of various determinants particularly human capital, social capital, awareness to labour laws and role of middleman on labour productivity of home based and outdoor women workers in Multan Division, Punjab, Pakistan using ordinary least square methodology. The results indicated that human as well as social capital has significant impact on the productivity of women. The coefficient of age, ownership of assets, family expenditures, self-employment, working as employee, worker's satisfaction, awareness about labour laws, urban location, marital status and joint family setup have a positive, while age-squared, number of children, restrictions to achieve education have a negative impact on labour productivity of women both home based and outdoor. The results provide evidence to suggest that policy makers should focus on human as well as social capital to improve women's capability to enrich their labour productivity, their living standards and growth of economy.

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1. Introduction

Economic participation of women plays a crucial role in socio-economic development of any country. Women in Pakistan are participating in both formal and informal sector. Around the world, sizeable chunk of labor force is employed in the informal sector. Informality occurs in labor markets of both low and high income countries; however, it seems to be more common in developing countries. According to labor force survey 2020-2021, informal sector employs 72.5 percent workers which are high as compared to formal sector 27.5 percent. With the growing decentralized production processes and globalization, work from home appeared as a considerable component of informal economy (Hassan & Azman, 2014). Home based workers are those who carry out remunerative work inside their homes or in their neighborhoods, whether as self-employed or paid workers[1]. They are usually indulged in several economic activities ranging from traditional craft production such as carpet weaving to new economies like assembling electronics; and other simple and low paid jobs like embroidery, stitching, kite making, handicrafts, packing, sorting, labeling goods, preparing food items, doing laundry etc.(Chen, 2014; Kazi, Raza, & Aziz, 1989). However, due to multiple constrains like poverty, social restrictions, cultural norms, gender discrimination, family occupation, safety, non-availability of transport services etc. a very low proportion of women work outside their homes in Pakistan and prefer to work from home. Majority of them are illiterate and are confronting the inter-generational poverty (Hassan & Azman, 2014). They earn very low income which is not

[1] Women in Informal Employment Globalizing and Organizing; Empowering Informal Workers, 2018

enough in reducing the level of poverty. There is a need to improve their capability to enrich their labor productivity and thereby living standard.

Labor Productivity is an important economic indicator and an imperative measure of economic growth. It represents the total volume of output (estimated in terms of Gross Domestic Product, GDP) produced per unit of labor (estimated in terms of the number of employed persons) during a given time reference period. According to Merriam-Webster productivity is defined as "the quality or state of being productive". The importance of labor productivity is best elaborated by the Nobel Laureate Paul Krugman "Productivity is not everything, but it is almost everything in the long run. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise output per worker". Improvements in productivity result in production of more goods and services by a certain workforce. For companies, higher labor productivity can generate greater profits, for workers it can result in higher wages and better working conditions; and for a government it can generate more tax revenue. The expansion of labor productivity is crucial to improve the quality of life and well-being of workers, meanwhile rising labor productivity can lead to higher wages and greater investment in human resources (Heshmati & Rashidghalam, 2018).

The human and social capital adds to individual productivity and thus the productivity of the organization. Human capital is the competency of people, while social capital is contribution of people with whom we interact during work and problem solving. Recent literature has shown that investment in human capital and social capital is substantial for sustaining and improving the economic growth over time. The human capital theory states that education, skills, training and health of an individual are basic components for raising productivity and economic growth. The trainings improve the skills of the worker which ultimately has a positive impact on productivity and income of the worker (Sabir, Akhtar, Bukhari, Nasir, & Ahmed, 2014). Investment in health capital also raises the labor productivity(Umoru & Yaqub, 2008) as unhealthy person value leisure more than work which adversely affects labor productivity. Uneducated or less educated and untrained women are usually confined to work in the informal sector and face wage discrimination (Arntz, Sarra, & Berlingieri, 2019). The higher education and professional training can shift the situation and can certainly improve the income of women in the informal sector. A worker with more education and on-the-job training contributes more to the productivity of the enterprise(Iqbal, 2023).

The aim of the present study is to empirically investigate the impact of human capital (e.g. education, training, health) and social capital (such as' strong family ties, formal ties, participation in exhibition) with some important additional variables like role of middleman with respect to procurement of raw material, family characteristics, work related variables and demographic variables on labor productivity of women home based workers (HBWs) and outdoor workers (ODWs). The study will not only highlight the problems and factors behind the low productivity of home based and outdoor workers but also propose recommendations to improve their living standards and healthier utilization of their resources for the development of Pakistan. The paper is based on following sections. Section 2 is about literature review, Section 3 deals with the data source and methodology used in the research, Section 4 explains empirical findings of estimation of labor productivity for both home based and outdoor workers. Finally, section 5 deals with conclusions and policy recommendations.

2. Literature Review

A study conducted by Khilji (2022) explored the determinants of labor productivity of females' who are engaged in home based work in Punjab. The study concluded that coefficient of all educational dummies are positive and significant, implies that increase in level of education raise the productivity of female who are doing home based work. It is found that age, individual participation in exhibitions, household expenditures and labor laws are positively while age-squared and middleman has a negative relationship with labor productivity. Moreover, results indicated that women who received training from government institute are more productive as compared to other sources. Sarwar, Sheikh, and Rabnawaz (2021) have explored the factors that effect the labor productivity in Pakistan and concluded that wage rate and human capital investment has a positive significant impact on labor productivity. While labor force participation and inflation are negatively associated with labor productivity. These findings imply that labor productivity can be improved by increasing the wage rate and investing more in human capital.

Results are consistent with efficiency wage theory and human capital theory. Siddique, Mohey-ud-din, and Kiani (2020) investigated the influence of health status on labor productivity and results indicated that improved health status is related with increased productivity. They found that physical capital and education positively influence the productivity, while participation in the labor force has a negative impact. Moreover, the impact of health on productivity is considerably greater in upper-middle-income countries as compared to lower middle-income countries. This study recommends the policy makers to focus on improving the health in middle income countries (MIC).

Ullah and Malik (2019) concluded that coefficient of health and education have positively related to workers productivity. The coefficient of inflation negatively influences the worker productivity while the effect of Foreign Direct Investment was found to be positive but insignificant. The coefficient of life expectancy is positively related to productivity, but is not statistically significant. The study suggests the government to adopt the measures to improve the health of workers so they can raise the productivity. Asghar, Danish, and Rehman (2017) conducted research in District Lahore to explore the effect of social capital on labor productivity and indicated that friendship among employers, managers and directors (bridging social capital) was positively associated with productivity of labor across all sectors (manufacturing, trading and service) with small deviation between different sectors. However, the effect is greater for service sector. The relationship among traders increases the labor productivity more in trading sector as compared to service sector. Moreover, numbers of membership (linking social capital) have a positive and significant influence on labor productivity in manufacturing sector but the effect is insignificant in trading and service sector. Another study conducted by Heshmati and Rashidghalam (2018) in Kenya and found that wage, capital intensity, worker's training, education and managerial experience positively related with labor productivity. While reliance on emails and websites for communication positively influence the productivity but the effect is insignificant. Moreover, the increase in monthly use of power and waiting for water connections negatively influences the labor productivity.

Asghar et al. (2017) investigated the effect of human capital in raising the labor productivity in Lahore district and found that education, training and skills positively and significantly influence the labor productivity. The study revealed that human capital effect the labor productivity differently in all the sectors; effect of education is found to have a positive and significant in all sectors while it has a larger effect on manufacturing sector. Skills contributed more to productivity in service sector than in manufacturing sector. The coefficient of financial participation and manager's wage were positive and significant only in trading sector. Haq, Khan, and Saddique (2015) observed the effect of firms' and workers' ethical attributes on firms' productivity in handicrafts industries of Azad Jammu and Kashmir (AJK). The study concluded that besides traditional factors, firms' and workers' ethical attributes improves the productivity of firms. Further, the effect of number of workers, hours of work, physical capital and experience on firms' productivity was significant and positive. The effect of education on firms' productivity was not significant as most of the workers in small handicraft industries are uneducated and no formal training facilities are available. Nagler and Naudé (2014) inspected the determinants of labor productivity in rural African enterprises of Ethiopia, Nigeria, Malawi and Uganda. The study concluded that enterprises located in rural areas were on average less productive as compared to those in urban areas and female-owned enterprises were less productive than male-owned enterprises. It is also found that age, education, access to credit and months of enterprise operation increases the labor productivity while experience of shocks reduces productivity.

Lebedinski and Vandenberghe (2014) have investigated the impact of education on productivity in Belgium and concluded that education and productivity was positively and significantly associated. It is found that two years' college and university education increase the worker's productivity at firm level more than primary education. While the effect of secondary education was not significant. Moreover, the study indicated that more educated workers earn more due to more productivity. Nayak, Patra, and Samal (2012) have explored the factors that encourage positive motivational behavior among workers to raise labor productivity and job satisfaction of these workers in handicrafts and cottage industries of Odisha, India. The results concluded that motivational factors such as human resource policy, allowance, welfare of labor and job interest positively associated with labor productivity. The study recommended rationale allocation of resources across different components of human capital to provide workers with the skills needed to make them productive. This study contributes in literature in the following ways.

The review of literature revealed that the impact of socioeconomic and demographic variables on productivity of women workers has been extensively evaluated, but most of the existing literature is based on labor productivity at firm and industrial level only few studies are observed at individual level and home based women worker. There is no empirical evidence available regarding the estimation of labor productivity of women home based and outdoor workers at a single platform in Multan Division. To the best of our knowledge, this study is the first to empirically examine the effect of human and social capital, role of middleman in addition to other most commonly used variables on labor productivity of women home based and outdoor workers in Multan Division.

3. Data and Methodology

3.1. Data Source and Sample Size

For the analysis, the purposive sampling technique was used to collect primary data from 1227 working women living in Multan Division, a division of the South Punjab Pakistan, which is comprised of mixed rural and urban blend. The target population included working women both home based and outdoor aged 15 years and above. Out of 1227 women; 607 were home based worker while 620 were outdoor workers. Questionnaire consisted of multiple choices as well as open ended questions and interviews conducted in their homes or at the place of their work were used to collect information. Apart from getting the information required through the questionnaires specific interviews were also conducted in their homes or at the place of their work. The women were interviewed in different languages according to their comfort level i.e., Urdu, Punjabi and Saraiki. The observations were recorded at the spot. Areas involving military installations, the homeless and agricultural activities or any activity contributing towards agriculture are excluded from the scope of the survey. For calculation of sample size following formula was used.

$$N = \frac{(z\alpha)^2\ [p*q]}{d\hat{}2} \times D,$$

Wheres, *N* denotes the required size of sample, expressed as the number of working woman. *Za* (Z alpha) is determined based on confidence interval. *P* is the population proportion. *q* is (100-p) when p is in percentage terms while, q is (1-p) when p is in decimal term. *d* is the margin of error. *D* is the design effect[2] (DEFF) for the indicator, whose value lies between ($1 \leq D \leq 10$).

3.2. Methodology

Ordinary lest square method (OLS) is applied for the estimation of labor productivity. Various human capital (education, training, health), social capital (strong family ties, formal ties, participation in exhibition), role of middleman in case of home based work, family characteristics (number of children, restrictions to achieve education, ownership of assets, family expenditures), work related variables (class of worker, worker satisfaction), awareness about labor laws, various occupations and demographic variables (location, marital status, family setup) has been used as an explanatory variables. To estimate the labor productivity following log-linear model is used:

$$\log(\mathrm{LP}) = \beta_0 + \sum_{j=i}^{k} \beta_k X_{ki} + u_i$$

Where, log (LP) represent the log of labor productivity of i^{th} individual, X_{ki} is the explanatory variable and u_i is a random disturbance term. According to literature (Đukec & Miroslav, 2017; Weeraratne, 2016), labor productivity can be defined as;

$$LP = \frac{Volume\ measure\ of output}{measure\ of\ input\ use}$$

Here, volume measure of output is defined as the amount of income earned per day and the measure of input use is defined as the number of hours worked per day.

[2] A design effect is an adjustment made to find a survey sample size.

3.3. Model Specification

Two models are estimated for women home based workers and outdoor workers separately. In the first model of HBWs impact of human capital variables and role of middleman has been explored with some family characteristics. In the second model, age in various categories, education and training in completed years are incorporated. Moreover, social capital variables including participation in exhibition individually, strong family ties and informal ties and work related variables are included along with various occupations to investigate their impact on women's labor productivity.

$$LOGLPHBW = \alpha 0 + \alpha 1AGE + \alpha 2AGE2 + \alpha 3PRM + \alpha 4MDL + \alpha 5\,MAT + \alpha 6\,INT + \alpha 7GRD + \alpha 8GOV + \alpha 9PRV + \alpha 10NGO + \alpha 11INF + \alpha 12BHU + \alpha 13OWN + \alpha 14HHM + \alpha 15MDM + \alpha 16NCH + \alpha 17ASST + \alpha 18LBL + \alpha 19MRS + \alpha 20FSP \quad (1)$$

$$LOGLPHBW = \Upsilon 0 + \Upsilon 1AGEII + \Upsilon 2AGEIII + \Upsilon 3AGEIV + \Upsilon 4AGEV + \Upsilon 5EDU + \Upsilon 6TRAN + \Upsilon 7EXHB + \Upsilon 8STRT + \Upsilon 9FORT + \Upsilon 10NCH + \Upsilon 11REDU + \Upsilon 12ASST + \Upsilon 13FMEX + \Upsilon 14SLF + \Upsilon 15EMP + \Upsilon 16WRKS + \Upsilon 17STCH + \Upsilon 18POTR + \Upsilon 19HNDC + \Upsilon 20LTHR + \Upsilon 21FOOD + \Upsilon 22LCN + \Upsilon 23MRS + \Upsilon 24FSP \quad (2)$$

For ODWs role of middleman is excluded while two additional educational dummies (masters and higher education) are included in first model because outdoor workers are highly educated. In the second model, age in various categories; education and training in completed years are incorporated. Social capital variables and work related variables are included along with various occupations.

$$LOGLPODW = \beta 0 + \beta 1AGE + \beta 2AGE2 + \beta 3PRM + \beta 4MDL + \beta 5MAT + \beta 6INT + \beta 7GRD + \beta 8MST + \beta 9HRE + \beta 10GOV + \beta 11PRV + \beta 12NGO + \beta 13INF + \beta 14BHU + \beta 15NCH + \beta 16ASST + \beta 17LBL + \beta 18MRS + \beta 19FSP \quad (1')$$

$$LOGLPODW = \lambda 0 + \lambda 1AGEII + \lambda 2AGEIII + \lambda 3AGEIV + \lambda 4AGEV + \lambda 5EDU + \lambda 6TRAN + \lambda 7STRT + \lambda 8FORT + \lambda 9NCH + \lambda 10REDU + \lambda 11ASST + \lambda 12SLF + \lambda 13EMP + \lambda 14WRKS + \lambda 15TCH + \lambda 16MED + \lambda 17BNK + \lambda 18ENG + \lambda 19MKT + \lambda 20CMO + \lambda 21OTHR + \lambda 22LCN + \lambda 23MRS + \lambda 24FSP \quad (2')$$

3.4. Description of Variables

The description of the variables used in the above models is given in Table 1.

Table 1: Description of Variables

Variables		Description
Dependent variable		
LOGLP	Labor productivity of woman	Ratio of volume measure of output to measure of input use
Explanatory variables		
Age Groups[AGE I (15-24 years)] reference category		
AGE	Age of woman	Woman's age in completed years
AGE2	Age-squared	Square of woman's age
AGEII	category II for age	1 if age group 25–34 years, otherwise 0
AGEIII	category IIII for age	1 if age group 35–44 years, otherwise 0
AGEIV	category IV for age	1 if age group 45–54 years, otherwise 0
AGEV	category V for age	1 if age group 55–64 years, otherwise 0
Human Capital Variables		
Education (No education is reference category)		
EDU	Education	Education in completed years
PRM	Primary	1 if primary level education, otherwise 0
MDL	Middle	1 if middle level education, otherwise 0
MAT	Matric	1 if matric level education, otherwise 0
INT	Intermediate	1 if intermediate level education, otherwise 0.
GRD	Graduation	1 if graduation level education, otherwise 0
MST	Masters	1 if masters level education, otherwise 0
HRE	Higher Education	1 if higher education, otherwise 0
Training		
TRAN	Training	1 if woman received training, otherwise 0
GOV	Government Institute	1 if woman received training from govt. institute, otherwise 0
PRV	Private Institute	1 if woman received training from private institute, otherwise 0

NGO	NGO	1 if woman received training from NGO, otherwise 0
INF	Informal Source	1 if woman received training from informal, otherwise 0
Health		
BHU	Basic health unit	1 for presence of basic health unit in locality, otherwise 0
	Social Capital Variables	
EXHB	Participation in exhibition	1 if woman participate in exhibition, otherwise '0'
STRT	Strong Family Ties	1 if woman has good relationship with family members (strong family ties), otherwise 0
FORT	Formal Ties	1 if woman has good relationship with people at work or middle man (formal ties), otherwise 0
	Role of Middleman (Owner Reference Category)	
OWN	Own or self-procure	1 if procurement of raw material by their own (self-procure), otherwise 0
HHM	Household member	1 if procurement of raw material from household member, otherwise 0
MDM	Middleman	1 if procurement of raw material from middleman, otherwise 0.
	Family Characteristics	
NCH	Number of Children	Total number of children
REDU	Restriction to achieve education	1 if woman face restrictions to achieve education, otherwise 0.
ASST	Ownership of assets	1 if woman own assets, otherwise 0.
FMEX	Family expenditures	Monthly family expenditures
	Work Characteristics	
WRKS	Work satisfaction	1 if woman is satisfied from her work, otherwise 0.
	Class of Worker (Casual Work Reference Category	
SLF	Self-employed	1 if woman works as self-employed, otherwise 0.
EMP	Employee	1 if woman works as employee, otherwise 0.
	Occupation	
Home Based Work (Livestock Reference Category)		
STCH	Stitching/ embroidery	1 if woman involved in stitching/embroidery, otherwise 0.
POTR	Pottery	1 if woman involved in pottery making work, otherwise 0.
HNDC	Handicraft	1 if woman involved in handicraft work, otherwise 0.
LTHR	Leather	1 if woman involved in leather products work, otherwise 0.
FOOD	Food	1 if woman involved in food products work, otherwise 0.
Outdoor Work (Clerical Work Reference Category)		
TCH	Teaching	1 if woman is involved in teaching, otherwise 0.
MED	Medicine	1 if woman is involved in medicine, otherwise 0.
BNK	Banking	1 if woman is involved in banking, otherwise 0.
ENG	Engineering	1 if woman is involved in engineering work, otherwise 0.
MKT	Marketing	1 if woman is involved in marketing, otherwise 0.
CMO	Computer operator	1 if woman worked as computer operator, otherwise 0.
OTHR	Other Work	1 if woman is involved in other work, otherwise 0.
	Demographic Variables	
LBL	Labor Laws	1 for awareness about labor laws, otherwise 0.
LCN	Location	1 if woman lives in urban area, otherwise 0.
MRS	Marital status	1 if woman is married, otherwise 0.
FSP	Family setup	1 if woman belongs to joint family system, otherwise 0.

4. Results and Discussion

Table 2 (Model 1) represents the OLS estimates of labor productivity of women home based workers (HBWs) and outdoor workers (ODWs). The value of R-squared is 0.53 for HBWs and 0.56 for ODWs, implies that the explanatory variables accounts for 53 % variation in the labor productivity of women HBWs workers and 56 % variation in labor productivity of women ODWs. The significant value of F-statistic indicated that the variables included in the model are suitable and model is overall good. The coefficient of women's age (AGE) is positive and has a significant impact on labor productivity. As women's age increased by one year, the average labor productivity of women HBWs increased by 1.7 % and that of ODWs increased by 1.2 %. The negative and significant coefficient of age-squared on the other hand showed non-linear relationship between age and labor productivity, as women get older their productivity falls due to decaying health and lack of enthusiasm to learn new things. Similar results are found by (Asghar et al., 2017; Ashraf, Afshan, & Sahibzada, 2022). Human capital includes education, experience, training, health and other professional initiatives that increase the level of

knowledge, skills and abilities of workers. Education plays a vital role in improving the labor productivity. The model incorporated different levels of education and illustrated that labor productivity of HBWs and ODWs increases as they get more education. In case of HBWs the productivity was highest for graduated workers and they were17.7% more productive than uneducated woman. While for ODWs the productivity was highest for highly educated woman and was 57.8 % more productive in comparison to uneducated women. Education improves the skills and capabilities of workers, makes them aware of workers' rights and access to better job opportunities which subsequently improve their productivity. Our findings are supported by (Asghar et al., 2017; Ashraf et al., 2022; Burger & Teal, 2015; Fleisher, Hu, Li, & Kim, 2011; Lebedinski & Vandenberghe, 2014).

To examine the impact of training on labor productivity, training dummies were introduced in the model. The training coefficients showed that productivity is highest (6.5 % and 9.8 %) for HBWs and ODWs who received training from government institute (GOV). The productive capacity of HBWs and ODWs who received training from private institute (PRV) was 5.0 % and 8.1% more as compared to women with no training. The trainings coefficients INF for HBWs and NGO for ODWs were less important in influencing the productivity. The training can improve the skills and capabilities of workers resulting in improved productivity (Ashraf et al., 2022; Konings & Vanormelingen, 2015).

The positive and significant coefficient of basic health unit (BHU) indicated that the productivity of women HBWs increased by 2.3 % with the presence of one additional basic health unit in locality. It improves the health of women workers and healthy workers have capability to produce more. However, the coefficient was insignificant in case of ODWs, therefore has more or less no effect on productivity. Because outdoor workers are usually residing in urban areas where large number of hospitals and medical facilities are more easily available. So, one more basic health unit or hospital in locality exerts minimal effect on improving physical capacity and thus productivity of outdoor worker. Positive relationship between health and productivity of labor was found by (Ullah & Malik, 2019; Umoru & Yaqub, 2008).

In case of procurement of raw material, home based workers are highly (5.9 %) productive who get the raw material by their own (self-procure) and are 3.9 % productive who get it from household member in comparison to owner. The role of middleman is also significant and unavoidable and found that HBWs who get the raw material from middleman were 4.0 % less productive than women who get the raw material from owner. The findings are similar with the theoretical expectations that middleman exploits the women HBWs. They provide raw material which is of low quality and pay low income which affect the product quality and minimizes the earnings. Ashraf et al. (2022); Hassan and Azman (2014); Sudarshan and Sinha (2011) corroborate this result.

The number of children and productivity of HBWs was inversely related, but the coefficient was insignificant indicating that number of children is not very important for home based worker to improve their productivity. However, number of children significantly influences the labor productivity of women who work outdoor as with large number of children increase their domestic and childcare responsibilities and have less time for productive work. The ownership of assets (ASST) positively and significantly affects the labor productivity of women who work from home. The productive potential of HBWs increased by 3.7 % for woman having ownership of assets, but for outdoor workers the coefficient found insignificant. The coefficient of awareness of labor laws (LBL) was positive and significant for both HBWs and ODWs with increase in by 3.8 % and 4.5 %, respectively. When workers are aware of labor laws they feel safe and know how to deal with the situations of exploitation (Ashraf et al., 2022).

The marital status (MRS) has positive and significant impact on women's labor productivity. Married HBWs are 1.7 % and married ODWs are 11 % more productive than unmarried woman. The provision of better education and health facilities to children with domestic and child care responsibilities motivates women to work more hours to increase their productivity. Family setup is another important determinant; the coefficient of family setup (FSP) was positive and significant. HBWs and ODWs who belongs to joint family system were (2.7 % and 4.8 %) more productive as compared to women living in nuclear family system. In joint family system it is easy for the working women to share the burden of domestic responsibilities and work longer hours to increase the productivity.

Table 2: Estimation of Labor Productivity of Home Based and Outdoor Workers

Explanatory Variables	Home Based Workers (1)	Outdoor Workers (1′)
Constant	1.613*	1.504*
	(27.543)	(31.436)
	Age in Completed Years	
AGE	0.017*	0.012*
	(5.754)	(5.787)
AGE2	-0.0002*	-0.0001*
	(-5.574)	(-4.540)
	Human Capital Variables	
PRM	0.033*	0.172*
	(2.738)	(4.334)
MDL	0.045*	0.261*
	(2.853)	(7.473)
MAT	0.050**	0.293*
	(2.513)	(9.948)
INT	0.101*	0.312*
	(4.739)	(11.501)
GRD	0.177*	0.348*
	(5.879)	(13.295)
MST	-	0.409*
		(15.960)
HRE	-	0.578*
		(15.247)
GOV	0.065*	0.098*
	(4.500)	(5.054)
PRV	0.050*	0.081*
	(3.206)	(3.828)
NGO	0.031**	0.013
	(2.054)	(0.354)
INF	0.023	0.081***
	(1.551)	(1.654)
BHU	0.023***	0.021
	(2.284)	(1.371)
	Role of Middleman	
OWN	0.059*	-
	(3.867)	
HHM	0.039*	-
	(2.685)	
MDM	-0.040*	-
	(-2.725)	
	Family Characteristics	
NCH	-0.001	-0.026*
	(-0.534)	(-3.224)
ASST	0.037*	0.023
	(3.616)	(1.445)
	Demographic Variables	
LBL	0.038*	0.045*
	(3.364)	(2.737)
MRS	0.017***	0.110*
	(1.706)	(4.157)
FSP	0.027*	0.048*
	(2.896)	(2.987)
Sample Size	607	620
R-squared	0.53	0.56
Adjusted R-squared	0.54	0.55
F-Statistic	34.04	41.54
Prob (F-Statistic)	0.000	0.000

Note: Dependent Variable: Log of Labor Productivity (LOGLP). Values in parenthesis are t-ratios. The statistical significant at 1%, 5% and 10% level are indicated by *, ** and *** respectively.

The OLS estimates of model 2 are illustrated in Table 3. The value of R^2 shows that explanatory variables have 56 % variation in labor productivity of women HBWs and 60 % variation in labor productivity of women ODWs. The regression result shown that the coefficients of all age groups were positive and highly significant for HBWs and ODWs. The productive

capacity of women increased with an increase in age and was highest in age group AGEIV (45-54 years) for HBWs and AGEV (55-64 years) for ODWs. With an increase in age skill, learning and experience of women improves which in turn increase their productivity (Asghar et al., 2017; Ashraf et al., 2022). The positive and significant coefficient of education and training was found for both HBWs and ODWs. It means that each additional year of education increased the productivity of women HBWs by 0.8 % and ODWs by 1.7 % respectively as compared to uneducated women. Nguyen (2015); Ullah and Malik (2019) also found positive impact on productivity. Further, the productivity of trained HBWs increased by 3.0 % and trained ODWs increased by 6.7% in comparison to untrained workers.

The participation in exhibition (EXHB) has a positive and significant impact; HBWs participating in exhibition were 2.2 % more productive in comparison to those who never participated in exhibition. Participation in exhibition provides them with an opportunity to meet potential buyers directly, display their product on a large platform, increases market access, provides information about business skills, reasonable wages and most importantly helps to gain valuable information about product demand and customer needs. So, their productivity improves and they become economically more empowered (Ashraf et al., 2022).

Bonding social capital shaped by strong family ties (STRT) has a positive significant effect on labor productivity of HBWs and ODWs. Strong relationships among family members help families to share the household responsibilities, so women workers get more time to work which in turn improves the productivity. Linking social capital shaped by formal ties (FORT) and labor productivity of women HBWs show positive and significant relationship, but the relationship is insignificant in case of ODWs. Healthy relationship with middleman or people at work place (formal ties) improves the worker's productivity (Asghar et al., 2017; Sabatini, 2008).

The number of children (NCH) has negative insignificant influence on labor productivity of HBWs and significant in case of outdoor workers. The coefficient of ownership of assets is positive and significant in both cases. The restrictions to achieve education negatively influence the labor productivity. The productive capacity of HBWs and ODWs significantly decreases by 4.2 % and 5.1 % respectively with each additional woman restricted to achieve education, because less educated workers have limited access to resources and have lack of skills and knowledge to enhance the labor productivity. Family expenditures (FMEX) have a positive relationship with labor productivity of women HBWs. The productive capacity of women significantly increases with an increase in consumption expenditures. This variable is recognized as the key supply side factor that encourages women to spend more time on home based work and produce more. However, the economic magnitude of this variable is very small. Similar results are presented by (Ashraf et al., 2022).

Class of worker plays significant role in determining the labor productivity of both HBWs and ODWs. The coefficient of self-employed (SLF) was positive but insignificant in both cases. The self-employed women have a wide range of choices, the autonomy to select any type of work, working hours, work environment, and the people with whom they work ultimately leads to more productivity. The coefficient of employee (EMP) was positive but insignificant for women who work from home and significant for outdoor worker. Employees do not have freedom of choice, they work longer hours and under strict conditions of employer due to which their productivity is lower as compared to self-employed.

Worker's satisfaction from work and labor productivity was positive but the relationship was insignificant for both HBWs and ODWs. Workers who are more satisfied from their work produce more. Occupation is another important variable that affects the women's labor productivity. All occupation dummies in case of HBW were statistically significant except LTHR and FOOD. The productive capacity of woman who were engaged in Embroidery/stitching, pottery and handicraft work was 3.6 %, 5.4 % and 5.6 %, respectively more than the women engaged in livestock. In case of ODW all occupational dummies were statistically significant except marketing and other work. The productivity was significantly highest for women who are teachers and was 8.9 % more productive compared to women who were working as a clerk. HBWs and ODWs residing in urban areas were 1.8 % and 7.9 % respectively, more productive as compared to women residing in rural areas due to highly paid jobs (Nagler & Naudé, 2014). The findings for the coefficient of marital status and family setup were similar as found in Table 2.

Table 3: Estimation of Labor Productivity of Home Based and Outdoor Workers

Explanatory Variables	Home Based Workers (2)	Outdoor Workers (2′)
Constant	1.764*	1.652*
	(62.872)	(35.29)
Age Groups [AGE I (15-24 years)] reference category		
AGEII	0.093*	0.083*
	(5.857)	(3.235)
AGEIII	0.093*	0.148*
	(5.645)	(5.418)
AGEIV	0.121*	0.145*
	(6.453)	(4.843)
AGEV	0.087*	0.152*
	(4.132)	(3.963)
Human Capital Variables		
EDU	0.008*	0.017*
	(6.162)	(9.451)
TRAN	0.030*	0.067*
	(2.733)	(4.174)
Social Capital		
EXHB	0.022***	-
	(1.903)	
STRT	0.040*	0.026
	(3.653)	(1.618)
FORT	0.035*	0.018
	(3.379)	(1.124)
Family Characteristics		
NCH	-0.0006	-0.030*
	(-0.225)	(-3.903)
REDU	-0.042*	-0.051**
	(-3.638)	(-2.040)
ASST	0.035*	0.029***
	(3.469)	(1.878)
FMEX	0.000001*	-
	(5.440)	
Work Characteristics		
SLF	0.020	0.050
	(1.422)	(1.438)
EMP	0.004	0.054***
	(0.274)	(1.732)
WRKS	0.012	0.020
	(1.236)	(1.228)
Occupations (Livestock for HBW reference category)		
STCH	0.036**	-
	(2.104)	
POTR	0.054*	-
	(2.812)	
HNDC	0.056*	-
	(3.030)	
LTHR	0.034	-
	(1.536)	
FOOD	0.032	-
	(1.255)	
Occupations (Clerk for ODW reference category)		
TCH	-	0.089*
		(3.193)
MED	-	0.080*
		(2.519)
BNK	-	0.059***
		(1.796)
ENG	-	0.074**
		(2.086)
MKT	-	-0.038
		(-1.177)
CMO	-	0.079**
		(2.563)

OTHR	-	-0.003 (-0.118)
	Demographic Variables	
LCN	0.018*** (1.667)	0.079* (4.655)
MRS	0.003 (0.349)	0.104* (3.998)
FSP	0.022* (2.439)	0.031*** (1.934)
Sample Size	607	620
R-squared	0.53	0.60
Adjusted R-squared	0.54	0.58
F-Statistic	34.04	37.82
Prob (F-Statistic)	0.000	0.000

Note: Dependent Variable: Log of Labor Productivity (LOGLP). Values in parenthesis are t-ratios. The statistical significant at 1%, 5% and 10% level are indicated by *, ** and *** respectively.

5. Conclusions and Policy Recommendations

The present study has estimated the labor productivity of home based and outdoor working women in order to investigate the effect of human capital, social capital, role of middle man, awareness about labor laws and various socio-economic and demographic variables by using OLS method. The analysis was conducted in Multan Division and concludes that human capital variable (education, training, and health) and social capital variables (strong family ties, formal ties and participation in exhibition) increase the productivity of both HBWs and ODWs. All human capital variables were significant for both HBWs and ODWs. But basic health unit was insignificant in case of outdoor work. The strong relationships among family members and healthy relationship with middleman or people at work place, individual participation in exhibitions significantly improves the productivity of women who work from home. The role of middleman is significant and unavoidable in case of home based work and result shows that woman who get the raw material from middleman is less productive. Age, ownership of assets, family expenditures, awareness about labor laws, location, self-employment, worker satisfaction, marital status and family setup have positive impact on productivity of both HBWs and ODWs. Age-squared, number of children and restrictions to achieve education has a negative impact on labor productivity of both HBWs and ODWs. The regression coefficient of number of children is negative and insignificant in case of home based work while significant for outdoor work. The productive capacity of women, who are engaged in embroidery/stitching work is highest in case of home based work while for outdoor workers, productivity of women engaged in teaching profession is highest among others. In the light of conclusion of this study, following are some suggestions and policy recommendations to improve the circumstances and labor productivity of home based and outdoor working women:

- Human capital should be on top priority by allocating extra resources for health, education, easy access to higher education, free provision of technical and vocational education to enhance the labour productivity and growth of the economy.
- The training coefficients showed that productivity is highest for HBWs and ODWs who received training from government institute (GOV). Therefore, government should establish more training institutes for women at the local level and provide skills and trainings to HBWs as well as outdoor workers and enhance the role of Technical Education and Vocational Training Authority (TEVTA) in urban as well as rural areas of Multan Division.
- Home based workers participating in exhibition were more productive in comparison to those who never participated in exhibition. The provincial government should organize some industrial exhibitions at local level and establish such mechanisms that provide home based working women an easy access to exhibitions.
- There is a negative impact of role of middleman on the labor productivity, as efficiency of HBWs was lowest if the raw material was acquired through middleman. There should be some legal implications with regards to the role of middleman or intermediaries to address complaints and resolve the issues of woman home based workers which affect their earnings and labor productivity.
- Awareness about labor laws considerably enhanced the productive capacity of woman who work from home or outdoor. However, the government of Punjab developed a comprehensive law; Punjab Home Based Workers Act, which recognizes home-based workers as "workers" and extended social protection to them but unfortunately, it has

been awaiting approval of the Law Department since, 2012. So, there is a dire need of Legislation and implementation of laws regarding decent working hours with fixed wages, social security benefits for working women in order to increase their productivity.

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