

IMPACT OF VARIOUS COSTS ON THE LIVING CONDITIONS OF KILN LABOUR: A CASE STUDY OF NORTH SINDH

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ABSTRACT

Cost of living is sum of expenses that are incurred to sustain life. It tells about standard of living of a person or household. Present paper is an attempt to estimate the impact of different costs on living quality of kiln labour. Here cost of living is the estimated as dependent variable with 7 independent indexed variables. The independent variables are cost of transport, utility, food, children education, personal health, family health and loan. Rent is not included in this model because kiln labour don't pay rent, rather they live in their own houses. Given the long working hours and poor work conditions, the paper justifies the cost of living with given variables. The Results endorse 58.4% explanatory power with value of R2 value of 0.584 with significant model ANOVA at 0.035 P-value. There are 2 significant positive variables (education expenses, and cost of family health), 3 significant negative variables (cost of utilities, cost on food, and cost of loan) and 2 statistically insignificant variables (cost of transport and cost of personal health). For checking strength of R2 separately all costs were regressed with dependent variable and it was found that R2 is relatively good indicator for food cost and for cost of utilities it is the worst predictor.

INTRODUCTION

Cost of living is sum of expenses that are incurred to sustain life. Costs included are transport, utility, food, children education, personal health, family health, and loan. Objectives of the research are to check impact of costs of transport, utility, food, children education, personal health, family health and loan on the living quality of kiln labor in North Sindh cities.

LITERATURE REVIEW

Faisal Akbar (2018) has calculated cost of living indices for 16 international cities i.e. London,

Table 1 Type and work profile of Labourers in Brick Kilns with number of work hours and days per week India (Palash Patra et al 2015)

Type of labourers	Work Duration(Hours/Day)	No. of Days in a week
Moulder labourer	8	6
Reja-Banki (Stackers)	07-8	6
Beldar (Loading)Labourer	07-8	6
Firing Labourer?	24	7

In the research conducted by Mayuree Das et al,(2018) 2018, in Assam, India it is concluded that labour start working from 5 am till 5 pm with

Dublin, Paris, Rome, Amsterdam, Prague, etc. New York city is the baseline. R2 is used to check the real explanatory power of variable. Best predictor is rent while worst predictor is coffee. (Faisal Akbar 2018). In present study both are irrelevant.

Labour work conditions: There are four labour types working at kiln, i.e. moulders/dressers, Reja-Benki, loaders/beldars and fire labourers (Palash Patra et al., 2015)

approximately 2 hours rest during the work hours. Firemen (firing labourers) work even after 5 pm, if so. So, working hours at kilns are very long. The

study has further quoted that the long exposure to kiln harsh and dusty environment has caused many physical and psychological health issues with labour. And it was observed that migrant workers live on site in makeshift huts with no any drinking water, electricity, bath room etc. facility and inhygienic food. The study concludes that the kiln industry is positively associated with employment generation with a health loss.

Muhammad Sohail et al., (2020) concludes that the decent work criteria given by the International Labour Organization (ILO) are not followed in Pakistan kiln industry. It is generally considered that labour laws are not applicable to kilns as those are not considered as factories and their owners are not industrialists.

Another study by (Siriman Naveen et al, 2016) suggests that the Hyderabad (India) kiln labourers are facing several challenges like violation of labour laws, advance loan system and interest on it from parallel private lenders, labour bondage contracts, network of exploitive contractors, under payment of

minimum daily wage (Rs. 387) (paid only Rs.200 for 1000 bricks), long Working hours (4 am to 8 pm), child labour and Sexual and physical harassment at workplaces.

The study further elaborated that the kiln workers have no fundamental rights at work like social security, dignity, union, and protection from violence.

Another study (Seshananda Sanjel et al, 2016) on work conditions and Brick Kiln industry labour welfare in Nepal finds out the stressful conditions at kilns that include external and internal heat, light, fire, cold, vibrations and noise. There are no safe levels of these constituents in Brick Kiln industry. Usually kiln temperature lies between 900C to 1200C. Heat related disorders are seen among labour at kilns like heat stroke, heat exhaustion, dehydration, heat syncope, heat cramps, and heat rash. Sweating rate increased to 623.6 (plus minus 105.4 g/h) and sweat loss increases to 1137.4 (plus minus 238.6 ml)

Table 2 Heat caused diseases in labour in Nepal, Kathmandu Valley

Heat related Disease	headache	insomnia	heat cramps	skin rashes
% of labour	34.30%	25.70%	20%	14.20%

The study further indicates that as temperature increases above 34.9C their productivity decreases specially of the women workers at the kilns. They cope with this high heat with reduced walking speed thus losing some income on being less productive. Other diseases like Musculo skeletal disorders include back (found among 50% of labour), neck (38%) and shoulder (29%) pain. The allowed weight that a labourer can carry is 12-40 kg. Labourers with highest level of contact risk with pollutants at kiln are ash handlers, brick unloaders, fire masters, etc. Respiratory diseases include pneumoconiosis and silicosis due to inhaling of siliceous dust at kilns. GIT infections in labour at kilns are frequently present. (Seshananda Sanjel et al, 2016).

Another study by (Shilpa Shrestha et al, 2019) suggests that the most vVulnerable employees in the Brick Kiln industry include poor, children, women, undocumented migrants and bonded labourer(due to huge debts and interest amounts) .

The study findings suggest that the worst form of child labour is found in the industry where children are brick carriers. The industry has no fixed scheduled working hours and the remuneration is paid on the basis of the number of bricks they carried and processed.

The labourers wore no foot protection as they used flip flop. Naike (middlemen) were not involved in the hiring process at kilns. Citizenship documents were not allowed to kiln to be kept. Mechanical process eliminates the injuries to the labour.

Bhat Mohed Sikander et al, , 2013 have analysed kiln carbon and other matter emissions. They found that kiln carbon and other matter emission is the third largest contributor to the air pollution after vehicle emissions and road re suspended dust at Dhaka. Annually 3.5 billion bricks are made in Dhaka (2013) with emissions of particulate matter (PM 2.5) of diameter of < 2.5 µm (23300 tons), sulfur dioxide (15500 tons), carbon monoxide (302000 tons), black carbon(6000 tons) and Carbon Dioxide(1.8 million tons). Emission rates changed

during kiln firing (operational) time (7 days) and in between two such Cycles. Emission levels reached with production of 1000 bricks at a kiln is 6.35 to 12.3 kg of CO, 0.52 to 5.9 kg of SO₂ and 0.64 to 1.4 kg of PM. The study concludes that SO₂ is the main pollutant in the kiln emissions.

The study by (Muhammad Sohail et al., 2020) on the rights of kiln labour suggests that the workman or worker is person who is defined to be employed at some place (kiln) where 10 or more are employed to manufacture some product (bricks), as in section 2 (g) of the Factories Act, 1934. According to definition of workman the labourers at kiln are entitled to receive insurance from kiln owner in case any accident according to Sindh Workers Compensation Act (2015).

As per the Act, the factory is defined, The Factories Act (1934), as place where 10 or more workmen / workwomen are employed to manufacture a product having aid of power or not. In case of Syed Shabbir Husain Kazmi versus Government of Pakistan verdict it is established that kilns are factories and labour inspectors are entitled to inspect all kilns so as to implement all labour laws. (Muhammad Sohail et al., 2020)

The industrial establishment is defined as place or workshop where articles are made for selling, transporting or using purpose. Bricks at kilns are made for selling purpose. It means that kilns are not only factories but also industrial establishment. It is obligatory for kiln employers to pay wages to kiln labourers as kilns are also industrial establishments. According to Payment of Wages Act (1936) wage period and no wage period is decided for workers at kiln. (Muhammad Sohail et al., 2020)

Minimum wage is lowest wage, fixed by government from time to time, that owner of kiln, etc is bound to pay to hired workers either skilled or unskilled. Sindh government fixed minimum wage at 17000 rupees via Minimum Wages Ordinance (1961) in 2020. (Muhammad Sohail et al., 2020)

The Industrial and Commercial Employment (Standing Orders) Ordinance (1968) In case of Syed Shabbir Hussain supra the Federal Shariat Court, it is established that kiln falls under this law. This law applies to factories/firms with minimum number of 10 employees. (Muhammad Sohail et al., 2020)

Sindh Workers welfare Fund Act (2014) provides support to kiln workers with respect to building low cost houses, health insurance, financing education, death and marriage grants. It is applicable to

industrial establishment which earns more than Rs. 500000 annually. (Muhammad Sohail et al., 2020)

The Industrial Relations Act (2012) deals with trade unions and any disputes between kiln owner and labour. (Muhammad Sohail et al., 2020)

Following eight fundamental conventions by ILO, are binding on every nation whether they have ratified those or not. Pakistan has ratified all of these.

1. Forced Labor Convention(1930)
2. Freedom of Association and Protection of the Rights to Organize Convention(1948)
3. Right to Organize and Collective Bargaining Convention (1949)
4. Abolition of Forced Labor Convention(1957)
5. Minimum Age Convention (1973)
6. Worst Forms of Child Labor Convention(1999)
7. Equal Remuneration Convention (1951)
8. Discrimination (Employment and Occupation Convention) (1958)

Kiln labour Quantity in Pakistan: Total labour in 18000 kilns is more than 1 million along with 115000 animals (mostly donkeys). (Business recorder, 15/01/2020).

RESEARCH METHODOLOGY:

Primary data was collected from the target cities.. Survey method was used. Sampling was non random purposive with focus on selecting labour to provide necessary primary data at target cities. Three North Sindh Districts were selected.

Kiln labor's cost of living is calculated or acquired via questionnaire form II using following heads.

Transport cost:

Usually labour lives near kiln where they work. Sometimes tractor trolley driver that works at kiln lives in that village where other labour live too. So most of labour saves transport cost by travelling through that tractor trolley. Other than that they travel by motorcycle to reach kiln site. Three to four travel by that motorcycle. There is holiday on Friday.

Total Transport Cost = monthly transport cost*months work.

Utility Cost:

they usually don't pay utility cost. Usually they use illegal electricity and for food they buy wood or dung by mound from the local market. So utility

cost is mostly cost of wood or dung for cooking and heating.

Rent cost:

(Not added in the model) This cost heading is not added in the model as kiln labour don't pay rent. Rent cost is usually zero as the labour is generational and lives in villages located locally. They own their houses.

Cost of food:

This cost includes costs of groceries, milk, flour, fruits, etc.

Children Education Cost: Those labourers who educate their children usually send to Government schools. Some don't send children to schools due to economic constraints. This cost of living is asked in the questionnaire form for one month. Except for summer and winter vacations all monthly education costs are added to get final Children Education Cost.

Personal health Cost:

Their prominent health problem due to kiln work is asked in the questionnaire form. And further their average monthly spending on personal health is asked to get final personal Health cost.

Family Health Cost:

It is cost of health spending on the family excluding self. Monthly health bill is added to get final Family Health Cost.

Loan repayment:

Kiln labour takes advance loan (Peshgi) to meet some pressing needs in the family. The amount of loan is usually very high and could not be paid easily by the labour at kiln. Mode of loan payment is deduction of rupees per income of 1000. Loan is usually taken by Jamadar and he is responsible for its payment back to kiln management.

Monthly Loan Payment = Daily deducted Rupees

*** active days in month**

Table 3 various costs of living

Variable	Time duration	Average value in Rupees
Cost of living	Per annum	196074
Transport	Daily	50
Utilities	Monthly	11000
Food	Daily	300

Total Loan Paid = Daily deducted Rupees * annual active days.

Remaining Peshgi Loan = Peshgi amount taken – total loan paid.

Middleman / Jamaadar / commission cost (Not included in model): This cost heading is not included in model as there is no base data to compare to (Karachi is base). Jamaadar is person who is responsible for the output, efficiency and provision of labour at kiln. He is the leader of the kiln labour who solves all their issues within themselves and with kiln management. For this he charges a commission or fees from the labour at the kiln. This is additional burden or cost for the kiln labour. Following data about Jamaadar will be asked in the questionnaire.

Total Jamaadar commission Paid = (Rs paid per 1000 income /1000)* Total Kiln Income

Retention (not included in model): This cost heading is not included in model as there is no base data to compare to (Karachi is base). It is the amount that is subtracted from the income of the labourer at the end of day. It is done so that he may not run from the bondage of the verbal contract. This is anticipatory cut on the income of the labour at kiln.

Standard city for comparing or index calculation is Karachi. Cost of living index, without rent, for Karachi, for a family of four, is as (Numbeo website)

Children education	Monthly	11000
Self Health	Monthly	5000
Family health	Monthly	10000
Loan Repayment	per annum	4000

Participants in the survey belong to many towns. Their cost of living is different. Following table is generated for running regression.

Index for each city is generated separately by comparing with Karachi. Karachi is baseline.

Table 4 City index generating table

City	Cost of living	Transport	Utilities	Food	Children education	Self Health	Family health	Loan Repayment
Karachi	100	100	100	100	100	100	100	100
Gambat								
Khairpur								
Larkana								
Sukkur								
Ranipur								

Average index number will be generated as Cost of living:

Kiln labour index = (sum of costs/cost of Karachi)*100

Average/city index = (sum of city kiln labour indexes/number of labour)

Transport:

Kiln labour index = (transport cost/transport cost of Karachi)*100

Average/city index (transport) = (sum of city kiln labour indexes/number of labour)

Same method is applied for the rest of costs indexes generation of kiln labour

Putting data into excel to run regression: Following table will be generated for regression purpose

Table 5 indexed data being put in for regression

	Y	X1	X2	X3	X4	X5	X6	X7
	Cost of living	Transport	Utilities	Food	Children education	Self Health	Family health	Loan Repayment
Gambat								
Khairpur								
Larkana								
Sukkur								
Ranipur								

Values are indexes i.e with respect to Karachi base data.

Cost of living regression is to be performed at individual level and aggregate level.

Individual regressions:

For all regressions following indicators will be explained

(Intercept, coefficient, p value, Adjusted R2, Residual value, etc)

1: (X1 =Transport Cost)

$$Y = a + \beta_1 X_1$$

2: (X2 =Utilities Cost)

$$Y = a + \beta_2 X_2$$

- 3: (X3 =Food Cost) $Y= a+ \beta_3 X_3$
- 4: (X4 =Children education Cost) $Y= a+ \beta_4 X_4$
- 5: (X5 =Self Health Cost) $Y= a+ \beta_5 X_5$
- 6: (X6 =Family Health Cost) $Y= a+ \beta_6 X_6$
- 7: (X1 =Loan repayment Cost) $Y= a+ \beta_7 X_7$

Multiple regression

It will be checked if the statistical indicators have changed, specially adjusted r2 and coefficients.

$$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$

Hypotheses Testing:

Multiple regression equation will be used to test hypotheses t aggregate level. Regression models overall significance is tested

H0: $\beta_1 = 0, \beta_2 =0... \beta_7 =0$ (i.e. there is no relation between x and y variables at all)

H1: $\neq 0$ (It means at least one of the independent variables shows a relation with dependent variable.)

Hypotheses (At individual level)

H1: Cost of transport has sufficient impact on cost of living)

H2 : Cost of utilities has sufficient impact on cost of living)

H3 : Cost of food has sufficient impact on cost of living)

H4: Cost of children education has sufficient impact on cost of living)

H5: Cost of self health has sufficient impact on cost of living)

H6 : Cost of family health has sufficient impact on cost of living)

H7 : Cost of loan repayment has sufficient impact on cost of living)

Statistical Analysis of CoL Regression equation.

R square of model, significance level of all coefficients got in regression, etc will be analysed.

Classification of costs based on R2:

Here it is shown which cost has been the best represented. If the cost is upward (increasing or not). Highest r2 will be best indicator (in individual regressions)

4. Results:

Participants in the survey belong to many towns. Their cost of living is different. Following table is generated for running regression. Index for each city is generated separately by comparing with Karachi. Karachi is baseline.

Table 6 Indexed cost values generated for each town/city

City	annual cost	Cost of living	Transport	Utilities	Food	Children education	Self Health	Family health	Loan Repay
Karachi	100	100	100	100	100	100	100	100	100
Bozdaar Wada	113.43	116	130	4.5	98.6	30.3	20	20	300
Gambat	113.22	112	117	5.7	113.5	8.6	20.4	35.6	200
Khairpur city	88.76	101	118.5	2.7	84	3.2	20.3	33.3	205
Kingri	92.00739	102	55	1.5	113.2	5.1	13.3	23.3	100
kolab jeeyal	123.167	95	120	3.4	134.2	7.6	17.5	35	250
kotdigi	95.664	95	97.5	5.9	93.4	8.5	17.8	28.2	254.6
larkana	117.1437	96	90	5.1	124.3	10.2	20.8	32.3	200

Tayab	88.206 49	115	80	3.6	65. 8	5	20	50	300
kot banglo	120.33 55	85	96.2	6.8	142 .5	6	25	35	108.3
Rasoolabad	81.240 91	88	76.9	4.5	87. 7	5	10	25	200
Sobhodero	103.45 42	83	80	3.6	111	5.6	20.2	32.3	206.7
Sui gas	92.057 08	79	130	0	98. 6	11.4	10	10	400
Sukkur	106.43 3	78	112	5.1	109 .3	5.6	24.2	31.7	226.1
Murad wahan, Sukkur	59.773 35	75	80	4.5	65. 8	5	10	20	190
Shar goth, sukkur	107.35 74	50	70	4.5	131 .5	7	10	30	300

Table: City indexes generated for CoL regression

SPSS Results achieved are

Table 7 Regression Results (Model Summary, ANOVA and Coefficients)

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.882 ^a	.778	.584	10.9747		
a. Predictors: (Constant), loanRepayment, Food, childredu, Transport, familyhealth, Utilities, personal health						
ANOVA^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3384.193	7	483.456	4.014	.035 ^b
	Residual	963.557	8	120.445		
	Total	4347.750	15			
a. Dependent Variable: y						
b. Predictors: (Constant), loanRepayment, Food, childredu, Transport, familyhealth, Utilities, personal health						
Coefficients^a						

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	94.317	22.964		4.107	.003
	Transport	.299	.208	.395	1.433	.190
	Utilities	-2.967	.873	-4.189	-3.401	.009
	Food	-.347	.134	-.459	-2.598	.032
	Childredu	2.170	.650	3.030	3.336	.010
	personalhealth	-.401	1.156	-.501	-.346	.738
	Familyhealth	1.460	.573	1.692	2.548	.034
	loanRepayment	-.162	.060	-.769	-2.687	.028

a. Dependent Variable: y

Table: SPSS Results achieved

Cost of living Equation generated is

$$Y = 94 - .769LR + .395T - 4.18U - .459F + 3.03CE - .501SH + 1.69FH + 10.9$$

CoL Regression analysis:

Adjusted R square is .584

Significant variables: Loan repayment, utilities, food, children education and family health are significant variables and have impact on cost of living .

Negative relation: Loan repayment, utilities, food and self health

Self health spending and transport cost are insignificant and have no impact on living of the kiln labour.

Table 8 Separate /individual Models to check strength of R square

Variable	Equation	R square	R ² predictor
Food		0.706	Good
Transport		0.109	Bad
Self Health		0.02	Bad
Family health		0.018	Bad
Children education		0.008	Bad
Loan Repayment		0.001	Bad
Utilities		0	Bad

CONCLUSION AND SUGGESTIONS:

Income or peshgi loan taken is spent on daily life heads of transport, utilities, rent, food, children education, self health, family health, jamaadar commission and loan repayment. Kiln managers also retain their daily dues as security against loan taken. At the end of contract, if there is, the retained amount is not given back to labour. Sometimes interest is also charged at the peshgi loan taken.

Costs of kiln labour life are transport, utilities, rent, food, children education, self health, family health, jamaadar commission and loan repayment. Usually labour lives near kiln where they work. Sometimes tractor trolley driver that works at kiln lives in that village where other labour lives too. So most of labour saves transport cost by travelling through that tractor trolley. Other than that they travel by motorcycle to reach kiln site. Three to four travel by that motorcycle. It is how they spend on transport. Utility cost is mostly cost of wood or dung for food cooking. They don't pay any rent cost. This cost is usually zero as the labour is generational and lives in villages located locally. They own their houses. Food cost includes costs of grocery, milk, flour, fruits, etc. Kiln labour takes advance loan (Peshgi) due to economic problems. The amount of loan is usually very high and could not be paid easily by the labour at kiln. Mode of loan payment is deduction of rupees per income of 1000. Loan is usually taken by Jamaadar in place of kiln labour and he is responsible for its payment to kiln management. Jamaadar is person who is responsible for the output and provision of labour at kiln. He is the leader of the kiln labour who solves all their issues within themselves and with kiln management. For this he charges a commission or fees from the labour at the kiln. This is additional burden or cost for the kiln labour. Retention is the amount that is subtracted from the income of the labourer at the end of day. It is done so that he may not run from the bondage of the verbal contract. This is anticipatory cut on the income of the labour at kiln. Average annual costs are 12264, 37818, 12283, 6558, 120780 and 10250 Rs for self health, family health, transport, utility, food and children education. Jamaadars are paid 20-30Rs per 1000Rs. On the average, 129 kiln labour paid 26000 Rs annually to Jamaadars. 162 kiln labour paid retention cost on the average 41000Rs annually. Peshgi loan is not paid only by 2 participants rest has paid usually 27 % of their total peshgi loan

taken (4% to 162%). Two participants have paid more than 100% of the peshgi taken. On the average kiln labour pay 12000Rs annually as loan repayment (range Rs.5000 – Rs.20000)

Only 26 participants have no deficit. On the average deficit is 40k-120k rupees. Highest deficit belongs to labour who work at small kiln (79k). for medium and large kiln labour it is 70k and 66k. There is inverse relationship between consumption and saving/deficit. Both savings and deficit fall down as consumption increases.

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