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ON-THE-JOB TRAINING IN INDIA: ACCESS, DETERMINANTS, AND THE IMPACT ON EARNINGS

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ABSTRACT

On-the-job training (OJT)[1] is important for both the organisation and the employees. It provides new skills, learning opportunities, and career mobility to the workers. From the employers' perspective, OJT helps in increasing productivity and efficiency of operations. In India, informal training at workplaces is the common and traditional way of acquiring requisite skills and expertise. However, formal training by the employers or the State agencies which involve formal assessment and certification is still rare. In the context of India, very few studies have looked into the determinant factors behind the access to OJT by the workers and its impact on their earnings. The present paper touches upon some of these aspects using the Period Labour Force Survey of National Statistical Office (PLFS, 2017-18). The study finds that access to OJT is highly associated with sector and enterprise types. Other factors that influence workers' access to OJT are: the place of residence, educational level, age, and gender. Although OJT improves the earnings of the workers, there exists a wide gender inequality in earnings even among the OJT-trained workers.

Key Words: *On-the-job training, skill development, formal training at the workplace, employer-provided training*

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The views expressed in this paper are author's own and does not necessarily belong to the organisation where he works.

1 This paper uses on-the-job training, workplace training, on-site training, in-service training interchangeably.

1. Introduction

Skill Development is essential to remain at the forefront of innovation, efficiency, and competitiveness in an increasingly knowledge-driven global economy. Mehrotra (2014) identified four forms of Vocational Education and Training (VET) in India. The first three are vocational education offered as part of school curricula at secondary and higher secondary levels, vocational training at industrial training institutes (ITIs), which requires at least 8 years of school education, and provision of short-term training courses through private operators affiliated by the National Skill Development Corporation (NSDC). The fourth form is the in-house skill development of the workers by organised segments of the Indian industry confined mostly to medium and large enterprises (ibid.).

All-India data from the Periodic Labour Force Survey (2018-19) shows that only 11.3 percent of the workforce in the age group of 15-59 years have received some form of VET and the share of formal VET is just 2.39 percent. The rest of them acquired skills through various other ways including the hereditary transfer of knowledge, self-learning, or taught informally on the job by traditional craftsmen or masters. The bulk of India's workforce work in the unorganised sector in low-paid insecure jobs, with less access to education and very little opportunity for pre-employment skilling, but there exists a strong willingness among them to take up additional training (Sodhi, 2014).

In recent years, the Government of India has implemented several schemes to incentivise the industry to undertake on-the-job training (OJT). It has reformed the National Apprenticeship Promotion Scheme in 2016 to make it more broad-based, increased the stipend for apprentices and subsidy to the industry, and removed much of the procedural complexities. The industry has been given the freedom to devise their curriculum according to their need for work-floor training of the apprentices. There are provisions for training in employers' premises under the Special Projects component of Pradhan Mantri Kaushal Vikas Yojana (PMKVY).[2] Assessment and formal certification of experienced workers can be organised by the reputed industries under the Recognition of Prior Learning component of the PMKVY scheme. Training activities are an integral part of various livelihood programmes, such as Deendayal Upadhyay Grameen Kaushalya Yojana, National Rural Livelihood Mission, and National Urban Livelihood Mission. There are provisions for sensitisation and subsidies for the employers to undertake training activities for the workers. However, despite all such efforts participation of private industries in skill development is low, even lower is their activities of employee training. Hence, only a very small section of the labour force receives OJT in India as compared to the developed countries.

2 For more, see Government of India (2020), Guidelines for Pradhan Mantri Kaushal Vikas Yojana 3.0 (2020-21), Ministry of Skill Development and Entrepreneurship

The paper studies the factors associated with access to OJT by different categories of workers and the outcomes of OJT in terms of their wage/earnings. Specifically, it asks the following questions -- What is the level of access to OJT among the workers in India? What are the factors associated with different categories of workers' access to OJT? What impact does OJT have on the wages/earning of different categories of workers?

To the best of our knowledge, although there exists literature on OJT from the perspective of human resource management, issues like access and outcomes of OJT are relatively new. PLFS, 2017-18 is the first survey in the country that collected specific data on OJT as part of formal vocational/technical education. The paper is divided into six sections: while Section 1, the present section, gives a brief overview of the OJT scenario in India and the Government of India's recent initiatives in promoting skill development among the industry body, Section 2 is a literature review; Section 3 describes the data sources and methodology; Section 4 presentsresults and analysis; Section 5 discusses the main findings, and Section 6 concludes the paper and opens some issues for future research.

2. Literature Review

Education and training enable both workers and organisations to improve efficiency, productivity, and adapt to a fast-changing environment to achieve desired goals (Lindsley, 1998). On-the-job training is often used as a significant means to provide domain-specific skills and knowledge (Ramasamy & Mani, 2016). The development of high potential workers through continuous training and retraining is seen as a core element in building the competitive advantage of the firms (Jain & Jain, 2016). According to Truitt (2011), organisations need to strengthen or expand their knowledge base, skills, and abilities for their employees to innovate continuously, grow sustainably, cope with the rapid changes in the external environment. OJT is important for another reason -- bridging the skill mismatch. Trainees in the vocational education system including Industrial Training Institutes (ITIs) often lack employable skills and the skill sets imparted in the training institutes do not match requirements for the job. To address this gap between the existing skills proficiency of the workers and employers' expectations, OJT is necessary.

However important workplace training is or the demand among the workers to upgrade their skills, in the developing economies of Asia, a common problem in promoting workplace training is low investment in skill development by the industries (Martinez-Fernandez & Choi, 2013). Analysing World Bank data Mehrotra (2014) found that only 20 percent of all registered firms in India provided any form of training, which is much lower than other emerging economies and developed economies. The most recent data from the Enterprise Survey (2014) of World Bank shows workers' training in micro (employing less

than 5 workers) and small enterprises (employing 5-19 workers) is much less than medium or large enterprises. The survey also reveals that cutting across the enterprises employees feel that there is a need for training that can help them acquire new skills and keep them uptodate in the workplaces. However, the high cost of training programmes is commonly shown as one of the major reasons behind the absence of training programmes for the workers.

According to Mehrotra and Ghosh (2014), despite the importance of training in raising firm productivity, many enterprises do not provide in-service training because of market failures caused by "moral hazard" combined with a "free rider" problem. The National Commission for Enterprises in Unorganised Sector (NCEUS), which was headed by economist Arjun Sengupta, noted long back in 2009 that those companies are not willing to invest in their employees for fear of being poached by competitors (GoI, 2009).

In contrast to the Indian experience, industry participation and OJT has been higher in advanced countries with a highly skilled workforce. Many employers in Britain provide on- and off-the-job training opportunities, often through apprenticeships (British Council, undated). Training is normally directly related to the job role and the needs of the organisation but is also broad enough to ensure that the learners have the ability to work in their chosen industry and other firms. Leading employers also provide their established employees with the opportunity to update and enhance their skills.

In Germany, both employers and the Works Councils promote vocational training and occupational education of employees, in cooperation with the authorities responsible for training and support.[3] Under the Works Constitution Act (1989) of the country, the employer has to investigate the training demand and discuss questions regarding training. The employer and the Works Council have to consider enabling workers to participate in training, taking into account the company-related requirements. Moreover, the specific aspects of older employees, part-time employees, and employees with family obligations are also considered.

Industry participation in skill development is a built-in characteristic of Chinese industrial development. In China as Mehrotra et al. (2013) noted, 90 percent of the firms provide in-firm training. The Vocational Education Law of China made it mandatory for the industries to provide vocational education to their staff, workers, and persons to be employed on a planned basis (ibid.).The government provides land at subsidised prices and preferential treatment in a government project to incentivise the industry to invest in skill training.

3 A Works Council is a representative body of workers in every establishment, especially in the medium and large ones. It is composed of five elected members from the regular workers of an establishment and has four years' term. The main responsibility of the Works Councils is to ensure implementation of labour laws and rules in true spirits and protect the rights of the workers.

The above examples show that workers' training is considered important in the industrialised economies and the private sector has an equal stake in the skill development of its workers. The picture in India, however, is completely different. There are workplace training programmes in the large corporate sectors and also there are few good initiatives under corporate social responsibility. But, overall, industry participation in the skill eco-system is low, let alone the aspect of workers' training through dedicated facilities and as part of overall objectives of profit maximisation.

According to the experts, there is an urgent need for private industry to step up their investment in workers' training. This is particularly so when there is a greater emphasis accorded to on-site training and government finances are under stress due to the impact of the Covid-19 crisis on the economy. In this context, this paper attempts to understand the barriers to access to OJT by the workers. The paper also digs deeper into the relationship between OJT and workers' earnings.

3. Data Sources and Methodology

The study is based on micro data of the annual Periodic Labour Force Survey (PLFS) of the National Statistical Office (NSO).We have used data belonging to the period July 2017 and June 2018. A multistage sample design was followed in PLFS, 2017-18. In rural areas, 2011 Census villages formed the first stage of sampling units (FSU). Each rural household was visited only once and one-fourth of the villages were covered in each quarter of the survey period. For urban areas, a multistage rotational panel design was followed where urban blocks from Urban Frame Surveys constituted the FSUs. A total number of 4,33,339 persons spanning all of India were surveyed under PLFS, 2017-18. The questionnaire of this survey contains questions on the vocational/technical background of the respondents. It specifically asks respondents questions about whether they received vocational training-- formal or otherwise. Those who have received formal training were further asked about the type of training-- 'on the job', 'part-time', or 'full time. There were also questions on duration, the field of training, and sources of funding. One limitation of the questionnaire is that it does not consider the possibility of receiving training from multiple sources, i.e., a worker can get vocational training through regular full-time courses and also at some point of his/her working career he/she can receive training from the employers. However, the survey has the option of recording only one type of training for an individual. Nevertheless, PLFS remains the only source of information on OJT received by the workers in India.

The present study covers the age group 15-59 years. It takes into account the workers who received OJT as part of formal vocational/technical training. We have considered the principal subsidiary status of the workers (ps+ss), a convention followed by most authors. By formal training, PLFS refers to the

training that is acquired through institutions/ organisations and is recognised by the national certifying bodies, leading to diplomas/certificates and qualifications.

We have primarily used tabular analysis to study the level of access to OJT, determinants of access, and effect on the earnings of trained workers as compared to the others. Additionally, we have used regression analysis to gain a better understanding of a variety of socio-economic factors behind access to OJT and the labour market outcomes. The factors behind the access to OJT have been studied using a logit regression analysis. Earnings of workers who received OJT have been compared with those with other forms of formal VET and unskilled workers at different levels of education across gender. We have estimated the Mincer wage equation to study the impact of the OJT on the earnings of workers[4]. The numeric form of the equation is given below--

$$\ln W_i = \beta' X_i + \delta V_i + e_i$$

Where $\ln W_i$ is the log of earnings of an individual i; X_i is a vector of personal and background characteristics of individual i, Vi is the individual i's educational attainment, and e_i is the random disturbance term.

4. Results and Analysis

4.1. Access to OJT by workers

In this section, we analysed access and determinants of OJT and its impact in terms of earnings. Our analysis covers all the sectors-- agriculture, manufacturing, and services. As we have explained, several studies have found that OJT is important for the workers for advancement in their careers, and hence, it is worthwhile to look at the factors behind access to OJT among all sections of workers. Overall, the proportion of the workforce who received formal vocational education and training is very low in India. Even in a lower base, the access to OJT is much lower as compared to other full-time and part-time VET programmes. Opportunities for OJT are higher among regular wage employed than self-employed or casual labourers. Interestingly, among the regular wage employed, female workers have higher access to OJT than their male counterparts (Table 1).

4 Mincer wage equation was used by Agrawal and Agrawal (2017) to estimate return from vocational education and training

Table 1: Access to on-the-job training by different categories of workers (PS+SS)

Gender	Activity status	On-the-job training	Part-time training	Full-time training	Informal training	All training
Male	Self- employed	0.08	0.24	1.17	14.03	15.52
	Regular wage employed	0.56	0.83	4.06	11.34	16.79
	Casual labourers	0.03	0.08	0.35	11.64	12.09
Female	Self- employed	0.04	0.55	1.36	13.00	14.96
	Regular wage employed	0.82	1.23	5.40	6.06	13.50
	Casual labourers	0.01	0.14	0.15	7.78	8.08
Person	Self- employed	0.07	0.31	1.22	13.78	15.38
	Regular wage employed	0.61	0.91	4.35	10.21	16.08
	Casual labourers	0.02	0.09	0.30	10.63	11.05

Source: Author's calculation from unit-level data of PLFS, 2017-18

The proportion of workers who received OJT in three broad sectors of the economy is shown in Table 2. As can be seen, access to OJT is very low across all the sectors, but within these overall low levels, the tertiary sector has a relatively higher availability of VET-qualified workers than the other two sectors. This is true for OJT and other forms of formal training. This result is not at all surprising if we analyse it juxtaposed with the findings of Enterprise Survey, 2014 which shows that a higher proportion of enterprises in the service industry have formal training programmes for full-time permanent employees as compared to manufacturing industries. What is more interesting is that female workers in the tertiary sector have better access to OJT in particular and formal training in general. Access to OJT is lowest among workers in the primary sector. However, if we see Appendix Table A1, it will be clear that the proportion of formally trained women employees who received OJT is highest in two fields of training -- security and aerospace. Except for security, in all other fields of training the proportion of women who received OJT is almost invariably less than their male counterparts.

Table 2: Distribution of workers by access to on-the-job and formal training across sectors

Sector	Male		Female		Person	
	On-the-job training	All formal training	On-the-job training	All formal training	On-the-job training	All formal training
Primary	0.03	0.64	0.00	0.50	0.02	0.60
Secondary	0.18	1.92	0.09	2.62	0.16	2.05
Tertiary	0.50	4.12	0.71	7.26	0.42	4.71
All	0.23	2.14	0.19	2.6	0.18	2.24

Source: Author's calculation from unit-level data of PLFS, 2017-18

Next, we analyse the determinants of access to OJT with the help of a logit regression model where the dependent variable takes the value of 0 or 1 depending upon whether the person has received OJT or not. The independent variables included in the model are the place of residence, gender, age, marital status, general education, technical education, sector, and enterprise type. The proportion of workers having these attributes who received OJT are shown in Appendix Table A2 and the results of the regression analysis are shown in Table 3.

Place of residence has a significant influence on the access to OJT and so are the personal attributes of a worker like gender, age, or marital status. Opportunities for OJT are significantly higher for the urban workforce than for rural workers. Interestingly, as we have observed in the case of descriptive analysis, female workers have a higher probability of OJT than male workers. The probability of receiving OJT improves with an increase in the age which is included in the model as a proxy for the experience of the workers.

As can be seen from the following Table 3, the educational background has a strong positive association with access to OJT. As the general education level rises, the odds in favour of receiving OJT increase. A similar trend is observed in the case of technical education also. The probability of receiving OJT is higher among technical degree holders. One significance of this finding is that formal employee training is available for high-end job which requires higher education and technical knowledge.

The chances of receiving OJT are higher in the secondary and tertiary sectors of the economy as compared to the primary sector. The access to OJT is also higher for those who work in Government bodies/public sector enterprises, autonomous bodies, public/private companies than proprietary/partnership enterprises. These patterns are discussed in more detail in Section 5.

Table 3: Determinants of access to OJT: Results of logit regression analysis

Explanatory variables	Odds ratio	Standard. Error	Z	P>|Z|	95% confidence interval	
					Lower limit	Upper limit
Place of residence (base=rural)						
Urban	1.028	0.003	10.18	0.000	1.023	1.034
Gender (base=male)						
Female	1.389	0.004	110.16	0.000	1.381	1.396
Age	1.014	0.0001	93.98	0.000	1.014	1.014
Marital status (never married)						
Ever married	1.373	0.006	78.92	0.000	1.362	1.383
General education (base= illiterate)						
Primary and below	6.362	0.139	84.54	0.000	6.095	6.641
Secondary and middle	19.597	0.403	144.75	0.000	18.823	20.403
Higher secondary	57.619	1.181	197.78	0.000	55.349	59.981
Technical education (base=no technical education)						
With technical education	3.519	0.010	442.47	0.000	3.499	3.538
Sector (base=primary)						
Secondary	5.781	0.048	209.48	0.000	5.687	5.877
Tertiary	5.714	0.470	211.59	0.000	5.622	5.806
Enterprise type (base=Proprietary/ Partnership)						
Government body/ Public sector enterprise	3.865	0.013	388.6	0.000	3.838	3.891
Autonomous body	3.789	0.049	103.06	0.000	3.694	3.886
Public/Private companies	3.231	0.012	305.48	0.000	3.207	3.255
Cooperative/Trusts	0.898	0.011	-9.0	0.000	0.878	0.919
Others	1.794	0.012	84.81	0.000	1.770	1.818
LR Chi2 (15)	1860795.45					
Prob.> Chi2	0.000					
Pseudo R2	0.20					
Log-likelihood	-3696086.2					

Source: Author's calculation from unit-level data of PLFS, 2017-18

As we have mentioned, there are not many studies in the Indian context on access to OJT. Few authors have studied the factors associated with access to vocational education and training. Kumar et al.(2019) studied the determinants of access to formal training based on the Employment and Unemployment Survey (2011-12) data using a logit model. Their results show opportunities for OJT are higher in the urban sector, and for females and higher educated persons. These results support our findings, except in the case of age and marital status. Kumar et al. (2019) found that single persons and those belonging to lower ages have higher access to formal VET. In contrast, our results show opportunities for OJT are higher for married workers and it increases with the age (or experience) of the workers. This implies that the probability of re-skilling/up-skilling is better for experienced employees but opportunities for formal training of new entrants in the job market are comparatively low.

4.2. Impact of OJT on workers' earnings

The most common way to study the impact of OJT on labour welfare is to compare the wage/earnings of OJT workers *before* and *after* training or compare the wages between groups of workers who received OJT against those who have not. However, the present dataset does not permit the first type of comparison. Instead, we have compared the average earnings of workers who received OJT with those who attended other types of training or have no training. We begin with the regular wage workers. PLFS, 2017-18 collected data on the monthly earnings of the workers whose current weekly status is regular wage employed. It can be seen in the following Table 4 that workers who received OJT earn much higher (Rs.27143/month) than the average earnings of all workers (Rs.16341/month). But the gender difference in earnings is higher among the recipients of OJT than in all other categories. Male workers earn nearly double (Rs.31390/month) on average than their female counterparts who received OJT (Rs.16779/month). Whereas, women workers in this category earn even less than the workers who have other types of formal training.

Table 4: Monthly earnings of regular salaried/wage employed persons who received on-the-job or other forms of vocational education and training

(Rs./month)

Type of training	Male	Female	All
Received on-the-job training	31390	16779	27143
Received other types of formal training	23130	20968	22547
All formal training	23882	20549	22976
Received informal training	14748	14364	14698
No training	17053	10118	16155
All workers	17196	13711	16431

Source: Author's calculation from unit-level data of PLFS, 2017-18

PLFS, 2017-18 gathered data on the monthly earnings of the workers who are self-employed by current weekly status. It can be seen that the monthly earnings of self-employed workers who received OJT are much higher than other forms of skilled or unskilled workers (Table 5). As with regular wage earners, in the case of self-employed workers as well there is a wide gender gap in earnings. However, gender inequality in the case of other categories of skilled and unskilled workers is much higher than the OJT-trained workers. If we consider the average monthly earnings of all workers, female workers earn nearly one-fourth (Rs.2619/ month) of the average earnings of male workers (Rs.10382/month). But in the case of OJT categories of workers, this male to female earnings ratio is 1.66.

Table 5: Monthly earnings of self-employed persons who received on-the-job or other forms of vocational education and training

(Rs./month)

Type of training	Male	Female	All
Received on-the-job training	22582	13595	21163
Received other types of formal training	16279	5425	8762
All formal training	16628	5641	13537
Received informal training	9159	1991	7756
No training	10439	2615	8818
All workers	10382	2619	8774

Source: Author's calculation from unit-level data of PLFS, 2017-18

PLFS, 2017-18 collected data on daily earnings on each day for the last seven days from the date of the survey for the workers whose current weekly status is casual labourer. We have taken an average of the earnings of the last seven days for the purpose of this analysis (Table 6). Among casual labourers, OJT-trained male workers earn more than the workers with general education on a daily basis but less than the workers who received other forms of formal training. The instance of women casual workers who received OJT is almost nil. Due to the very high gender wage differential in the case of other types of formally or informally trained workers and unskilled workers, the daily earnings of male casual workers are higher than that of female workers.

Table 6: Daily earnings of casual workers who received on-the-job training or other forms of vocational education and training

(Rs./day)

Type of training	Male	Female	All
Received on-the-job training	299	-	299
Received other types of formal training	312	131	290
All formal training	311	131	291
Received informal training	267	161	251
No training	289	176	265
All workers	287	175	264

Source: Author's calculation from unit-level data of PLFS, 2017-18

To sum up this discussion, we can see that OJT is effective in raising workers' wages and earnings. But high earning differential between male and female workers exists even among the workers who received OJT. In a recent study, Singh et al. (2020) have shown the persistent gender gap in earnings among the technically and vocationally trained regular wage workers and casual workers between 2004-05 and 2017-18. Our analysis of OJT workers which is a subset of the formal VET workforce reinforces their findings.

The evidence from other Asian countries on wage returns to OJT is mixed. A study by Adhvaryu, Kala, Nyshadham (2018) on the female workers in the readymade garment industry in India found that on-the-job soft skill training leads to a large and persistent increase in productivity, but have negligible effects on wages and turnover. Almeida & Faria (2014) used propensity score matching to study the wage returns to OJT in the two Asian countries of Malaysia and Thailand. The authors found that the average wage returns to OJT were7.7 percent in Malaysia and 4.5 percent in Thailand. In the context of Vietnam, based on a matched employer-employee panel dataset spanning the years 2011-2015, Nguyen et al. (2020) found a positive but insignificant impact of OJT on employee wages.

We have estimated the Mincer Wage Equation Model to study the impact of OJT on the earnings of the workers, after controlling for other factors. Three equations have been estimated separately for self-employed, regular wage employed, and casual workers. The independent variables used in the regression, their expected signs, and average earnings across different levels are shown in Appendix Table A3. Mincerian wage equation expresses the earnings of individuals as a function of experience, years of education, and other professional and background variables. We have taken age as a proxy for experience and the highest level of educational attainment as a proxy for the number of years of schooling. Results are shown in the following Tables7-9. In the case of regular wage earners and self-employed workers, the regression analysis shows that OJT has a positive and significant impact on monthly earnings. This confirms our earlier findings in descriptive analysis. Even after controlling for other important factors that influence the earnings of workers, the impact of OJT shows a positive sign (Tables7&8). In the case of casual labourers, receiving OJT does not impact their daily earnings much (Table 9). The coefficient of the dummy variable for OJT is positive but not significant. Coefficients of all other variables bear the expected signs. Casual labourers are the most vulnerable economic groups either in rural or in urban areas and a majority of them have very scant access to training or skill-building. The fact that OJT hardly has any impact on their earnings calls for more sincere efforts for providing quality training to this group which can make them more productive in line with the changing market and technology.

Table 7: Impact of On-the-job training on monthly earnings of regular wage employed persons (dependent variable= log of monthly income)

Independent variables	Coefficient	Robust standard error	t-value	P>|t|	95% confidence interval	
					Lower limit	Upper limit
Place of residence (Rural=0)						
Urban	0.224	0.011	19.82	0.000	0.202	0.246
General education (illiterate=0)						
Literate without formal schooling	0.217	0.092	2.36	0.018	0.037	0.397
Primary & below	0.172	0.019	9.06	0.000	0.135	0.209
Secondary &middle	0.394	0.017	23.44	0.000	0.361	0.427
Higher secondary & above	0.930	0.017	56.05	0.000	0.897	0.962
Technical education (No=0)						
Received technical education	0.344	0.013	25.92	0.000	0.318	0.370
Whether received on-the-job training (No=0)						
Received training	0.152	0.042	3.59	0.000	0.069	0.236
Marital status (never married=0)						
Ever married	0.118	0.017	10.05	0.000	0.095	0.141
Gender (Male=0)						
Female	-0.426	0.011	-40.36	0.000	-0.447	-0.406
Age	0.025	0.003	8.25	0.000	0.019	0.031
Age squared	-0.0006	0.00004	-1.71	0.088	-0.0001	9.86e-06
Social group (ST=0)						
SC	-0.108	0.019	-5.43	0.000	-0.147	-0.069
OBC	-0.081	0.018	-4.38	0.000	-0.117	-0.045
Others	0.032	0.018	1.73	0.083	-0.004	0.068
Religion (Hinduism=0)						
Islam	-0.088	0.012	-6.83	0.000	-0.113	-0.063
Christianity	0.092	0.019	4.98	0.000	0.056	0.129
Others	0.042	0.019	2.21	0.027	0.005	0.080
Constant	7.772	0.058	133.02	0.000	7.658	7.887
N	75424					
F (17,75406)	1070.05					
Prob.>F	0.000					
R^2	0.362					
Root MSE	0.686					

Source: Author's calculation from unit-level data of PLFS, 2017-18

Table 8: Impact of On-the-job training on monthly earnings of self-employed persons (dependent variable= log of monthly income)

Independent variables	Coefficient	Robust standard error	t-value	P>|t|	95% confidence interval	
					Lower limit	Upper limit
Place of residence (Rural=0)						
Urban	1.070	0.032	33.84	0.000	1.008	1.132
General education (illiterate=0)						
Literate without formal schooling	0.261	0.214	1.22	0.223	-0.159	0.680
Primary & below	0.375	0.054	6.92	0.000	0.269	0.481
Secondary & middle	0.330	0.050	6.62	0.000	0.232	0.428
Higher secondary & above	0.509	0.058	8.72	0.000	0.390	0.616
Technical education (No=0)						
Received technical education	0.524	0.084	6.21	0.000	0.359	0.690
Whether received OJT (No=0)						
Received training	1.015	0.230	4.42	0.000	0.565	1.465
Marital status (never married=0)						
Ever married	1.200	0.076	15.80	0.000	1.051	1.349
Gender (Male=0)						
Female	-3.341	0.049	-67.64	0.000	-3.438	-3.244
Age	0.380	0.013	28.34	0.000	0.353	0.406
Age squared	-0.004	0.0002	-24.12	0.000	-0.004	-0.004
Social group (ST=0)						
SC	0.634	0.074	8.6	0.000	0.489	0.779
OBC	0.319	0.066	4.81	0.000	0.187	0.445
Others	0.434	0.067	6.45	0.000	0.301	0.566
Religion (Hinduism=0)						
Islam	0.567	0.045	12.57	0.000	0.479	0.656
Christianity	0.830	0.071	11.69	0.000	0.691	0.970
Others	0.155	0.078	1.99	0.047	0.002	0.309
Constant	-2.909	0.247	-11.76	0.000	-3.394	-2.425
N	94415					
F (17, 94397)	782.55					
Prob.>F	0.000					
R^2	0.34					
Root MSE	2.829					

Source: Author's calculation from unit-level data of PLFS, 2017-18

Table 9: Impact of On-the-job training on daily earnings of casual wage employed persons (dependent variable= log of daily income)

Independent variables	Coefficient	Robust standard error	t-value	P>|t|	95% confidence interval	
					Lower limit	Upper limit
Place of residence (Rural=0)						
Urban	0.147	0.009	16.13	0.000	0.129	0.164
General education (illiterate=0)						
Literate without formal schooling	0.134	0.054	2.48	0.013	0.028	0.241
Primary & below	-0.10	0.013	-0.75	0.453	-0.037	0.016
Secondary &middle	0.032	0.013	2.49	0.013	0.007	0.058
Higher secondary & above	0.038	0.019	2.03	0.042	0.001	0.075
Technical education (No=0)						
Received technical education	0.073	0.052	1.39	0.165	-0.030	0.175
Whether received on the job training (No=0)						
Received training	0.052	0.194	0.27	0.791	-0.329	0.432
Marital status (never married=0)						
Ever married	0.064	0.020	3.19	0.001	0.025	0.103
Gender (Male=0)						
Female	-0.517	0.013	-40.36	0.000	-0.542	-0.492
Age	0.017	0.004	4.43	0.000	0.010	0.025
Age squared	-0.0002	0.00005	-4.63	0.000	-0.0003	-0.0001
Social group (ST=0)						
SC	0.134	0.176	7.66	0.000	0.100	0.169
OBC	0.176	0.017	10.25	0.000	0.142	0.209
Others	0.176	0.019	9.44	0.000	0.139	0.212
Religion (Hinduism=0)						
Islam	-0.010	0.015	-0.62	0.537	-0.040	0.021
Christianity	0.190	0.027	7.01	0.000	0.137	0.243
Others	0.052	0.019	2.69	0.007	0.014	0.090
Constant	6.736	0.064	104.9	0.000	6.610	6.862
N	31198					
F (17, 31180)	159.49					
Prob.>F	0.000					
R^2	0.21					
Root MSE	0.48					

Source: Author's calculation from unit-level data of PLFS, 2017-18

4. Discussion

It is clear from the above analysis that opportunities for OJT are very few in India and it constitutes a small part of formal vocational training programmes. Primarily, this is mainly due to two factors. The first is related to the prevalence of informal sectors in the economy. The share of the informal sector in the country's total workforce was 91 percent in 2017-18 (Bordoloi et al., 2020). According to Mehrotra and Giri (2019), informal sector firms accounted for 96.7 percent of the share of all firms in India. The demand for formally skilled workers is very low in informal enterprises. NSO defines informal enterprises as proprietary and partnership enterprises.[5] Our analysis shows that the opportunities for OJT improve significantly as one moves from proprietary and partnership enterprises to formal type enterprises.

Moreover, micro, small and medium enterprises (MSMEs) dominate the Indian industrial sector. Mehrotra and Giri (2019) estimated that 99.1 percent of the enterprises in organised and unorganised sectors are micro-enterprises. The infrastructure and capacity for skill-building and training are very low in micro and small enterprises. The skill acquisition of MSME workers mostly happens through various non-formal ways of learning on the job. Investment in skill development of the workers or OJT is typically less partly due to their weak financial capacity, lack of appreciation for the need for formal skilling, and apprehensions that once skilled and certified, workers would demand higher wages and compensation.

Apart from the predominance of the informal sector and MSMEs in the Indian economy, there are other factors too. One of them is the lack of participation of the private sector in skill development which is partly responsible for very few opportunities for OJT. According to Mehrotra and Pratap (2018), overall government investment in skill development accounts for more than 99 percent of the total investment. Despite skill up-gradation being an important factor for productivity and profitability of the firms, the contribution of private industries in skill-building is minimal. The latest round of Enterprise Survey (2014), which covers only the registered manufacturing, retail, and services enterprises, shows that less than one-fourth of enterprises feel skill training is the most important factor in improving domestic sales. The survey further reveals that only 36 percent of the registered enterprises in India have formal training programmes for their permanent employees. Among those who do not have such a formal training programme, 58 percent feel that there is no need for such programmes in their enterprise. In sharp contrast to this picture, in Germany, a European country which is known as a global manufacturing hub and famous for its dual-track vocational training programme, around 86 percent of the training cost is borne by private industry, and only 14 percent is borne by the government.

5 For more discussion on this, see Government of India (2019), Concepts and Definitions, Chapter 2,Annual Report of Periodic Labour Force Survey, 2017-18,National Statistical Office, Ministry of Statistics and Programme Implementation. pp. 28

The other interesting finding of this study is the relation between OJT and the earnings of the workers. With an exception in the case of casual workers, in other cases, the study has found a significant positive relationship between earnings and access to OJT. In fact, OJT is more effective vis-à-vis other part-time and full-time formal training programmes in raising the earnings, which also implies that OJT makes the workers more productive and more indispensable for the firms. However, in the case of casual workers, the regression analysis shows that OJT has a positive impact on daily earnings but that is not significant at the 5 percent level. Casual workers have the most un-secured work contracts and the least bargaining power. Opportunities for OJT are also least among the casual workers as compared to regular salaried persons. Moreover, when good employment opportunities are few and unemployment/underemployment in the economy is rising, casual workers are most severely affected. Some of these factors have exerted downward pressure on the earnings of casual workers.

5. Conclusions

This paper mainly focused on the issues of access to OJT and the impact of OJT on workers' earnings. It is found that a very small proportion of the working population has received OJT. We have discussed the importance of OJT in imparting industry-relevant skills, meeting the skill mismatch, and staying at the frontline of technology adoption. We have further discussed the role and various obstacles faced by the industry in providing formal on-the-job training. In this regard, we can refer to Hoeckel (2008), where the author argues that if employee training can be integrated into the broader human resource planning and objective of staff retention, the employers would then be at best placed to assess training needs and outcomes. In this context, he also discussed how multi-employer training is beneficial to small and medium enterprises as it can reduce administrative costs, overcome some of the poaching and market failure problems, ensure training in broad skills of a potentially transferable kind, and makes it attractive to young people (ibid.).

Opportunities for OJT are low in the case of self-employed persons. Many of these self-employed workers work in their family enterprises as helpers or as own-account workers. The most common way of learning for these workers is the hereditary transfer of knowledge/ skills or self-learning. There needs to be a special effort to bring these workers under a formal skilling network. Similarly, special emphasis should be given to the workers residing in rural areas with less education or being engaged in the primary sector. The scope and opportunities for OJT for these types of workers are substantially less. Suitable training programmes should be devised so that all categories of workers including the informal sector get equal opportunities for appropriate OJT courses according to their qualifications, job profile, and interest. Similarly, casual workers work for an employer for a very short period. Sometimes, they work for multiple

employers in a given working day. The gig economy has brought several far-reaching and significant changes in the labour market. Labour contracts in many sectors, such as home delivery, etc., are now for a very short period and employee turnover is very high. All these characteristics make employers' incentive in skill-building of casual workers very less. However, the new-age business ethics, principles, and technology demand their workers be trained with newer skills. Therefore, the training of casual workers needs to be seriously considered.

Finally, our analysis has found that OJT has a positive impact on the earnings of regular wage employed and self-employed workers, but not in the case of casual labourers. Given the increasing casualisation of the nature of work and the rise of the gig economy, this is an area of concern. Hence, special care needs to be taken for this section of the labour force by framing and implementing, especially in terms of ensuring fair wages, decent work conditions, and labour rights. Another important finding of this paper is that, despite higher access of women to OJT, there exists a high gender gap in earnings across all categories of workers and all types of training. This shows that workplace training alone cannot be effective in equalisation of wages, rather, strict implementation of minimum wages act and various social security benefits, improving their access to information, and resource entitlements should be carried out in more effective manners.

Last, but not least, Target 4.3 of Sustainable Development Goals (SDG) aims at equal access to technical, vocational, and higher education by 2030, and India Inc. can play a significant role in achieving this goal. However, for this, it needs to prioritise skill training of the workers. Regular training needs assessments of the workers, aligning non-formal in-firm training activities to formal courses, investing in training infrastructure, providing opportunities for capacity building, and training of trainers in their factories and laboratories are some of the ways in which industry participation in skill development can be increased.

Appendix Tables

Table A1: Proportion of formally trained workers who received on-the-job training

Field of Training	Male	Female	Person
Aerospace and aviation	75	40	71.2
Agriculture, non-crop based agriculture, food processing	2	0	1.7
Allied manufacturing-- gems and jewellery, leather, rubber, furniture and fittings, printing	6.1	3	5.3
Artisan/craftsman/handicraft/creative arts and cottage-based production	0.1	1	0.8
Automotive	7	0	6.8
Beauty and wellness	42.4	3	3.6
Chemical engineering, hydrocarbons, chemicals, and petrochemicals	14.4	0	13.5
Civil engineering -- construction, plumbing, paints, and coatings	10.7	6	10.1
Electrical, power, and electronics	4.8	5	4.8
Healthcare and life sciences	13.2	14	13.7
Hospitality and tourism	7	6	6.6
Iron and steel, mining, earthmoving, and infra building	28.1	0	26.3
IT- ITeS	2.7	1	2
Logistics	22.7	0	9.9
Mechanical engineering, capital goods, strategic manufacturing	3.8	0	3.7
Media journalism, mass communication, and entertainment	5.1	1	4.2
Office and business-related work	9.3	4	6.5
Security	23.6	100	37.8
Telecom	13.8	0	11
Textiles and handlooms, apparels	11.7	2	2.8
Work related to childcare, nutrition, pre-school and crèche	17.6	14	14.8
Other	8.6	5	7.1
All	7	4	5.8

Source: Author's calculation based on unit-level data of PLFS, 2017-18

TableA2: Independent variables used in the regression of determinants of access to on-the-job training by workers (YES=1, No=0)

List of independent variables	Description	Levels	Proportion of workers with list of characteristics who received on-the-job training	
			Proportion	χ^2/ F statistic
Place of residence	Place of residence of the respondent	Rural=0	0.01	88.5†,***
		Urban=1	0.23	
Gender	Gender of the respondent	Male=0	0.20	45.83†,***
		Female=1	0.10	
General education	Highest general education attained by the respondent	Illiterate=0	0.01	556.26†,***
		Literate without formal schooling=1	0.00	
		Primary and below=2	0.03	
		Secondary and middle=3	0.07	
		Higher secondary and above=4	0.42	
Technical education	Whether received technical education	No=0	1.10	1.4e+03†,***
		Yes=1	1.58	
Enterprise type	Type of the enterprise	Proprietary=0	0.08	1.1e+03†,***
		Government/ PSE=1	1.02	
		Autonomous=2	0.29	
		Public/ private companies=3	0.83	
		Cooperative/ trust=4	0.41	
		Others=5	0.13	
Age	Age of the respondent	Numeric	36€	15.91‡,***
Sector	Broad sector (NIC 2008 two-digit level) of the industry	Primary=0		
		Secondary=1	0.11	164.01†,***
		Tertiary=2	0.47	

Source: Author's calculation from unit-level data of PLFS, 2017-18

Note: € Average age of the workers who received on-the-job training

† Chi^2 test of association between provision of formal workplace training and the respective characteristics of the establishment

‡ ANNOVA test of difference in mean of the respective variable between establishments that provide formal workplace training or not.

*** denotes significant at 1 percent level

Table A3: Independent variables used in the regression impact of on-the-job training on the earnings of workers (YES=1, No=0)

List of variables	Description	Levels	Average earnings		
			Self-employed (Rs./ month)	Regular wage employed (Rs./month)	Casual labour (Rs./ day)
On-the-job training	Whether received formal on-the-job training?	No=0	21479	26830	236
		Yes=1	8838	16373	289
		|t|	6.94	5345.13	1.56
Place of residence	Place of residence of the respondent	Rural=0	6421	13476	230
		Urban=1	12237	17894	281
		|t|	86.16	29.3	34.39
Gender	Gender of the respondent	Male=0	11197	17910	276
		Female=1	3338	14505	160
		|t|	94.4	25.1	61.95
General education	Highest general education attained by the respondent	Illiterate=0	5308.5	7257.4	213.5
		Literate without education	6874.8	11761.4	248
		Primary and below=1	7211.1	8730	234
		Secondary and middle=2	8580.9	11316.2	256
		Higher secondary and above=3	14101.5	22725	262
		|F|	1503.36	2874.90	147.89
Technical education	Whether received technical education	No=0	9336	15824	254
		Yes=1	19075	28053	318
		T	47.6	69.09	7.44
Social group	Caste/Social group of the worker	ST=0	5153.59	15896.47	194.80
		SC=1	6578.14	13124.69	234.42
		OBC=2	8184.59	14918	248.39
		Others=3	11712.19	19236.95	240.76
		|F|	991.05	697.16	82.52
Age	Age of the respondent	Continuous	0.22®	0.31®	0.02®
		χ^2			
Age^2	Square of age	Continuous	0.20®	0.31®	0.009®
		χ^2			
Religion	Religion of the worker	Hindu=0	8617.4	16805.4	231.6
		Islam=1	9005.5	12024.7	252.8
		Christianity=2	10481.7	18056.4	312
		Others=3	13076.6	18294	235.4
		|F|	40.87	204.19	150.16

Marital status	Marital status of the worker	Never married	5791	12211	259
		Ever married	10294	18758	253
		|t|	46.42	50.5	3.29

Note: ®Correlation with average income and age/age squared

Source: Author's calculation from unit-level data of PLFS, 2017-18

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