Dynamics of Informal Employment in Maharashtra: prelude to a triad

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1. Introduction

We examine household, personal, and labour market characteristics of persons who are 15 years and above, living in the state of Maharashtra. Analysing unit records of National Sample Survey (NSS) 61st, 66th and 68th rounds we discuss changes in employment during the period 2004-2005 – 2011-2012. While we present salient features of employment, the focal theme of this paper is the emerging scenarios in informal employment in Maharashtra. Quite important, informal employment continues to be the principal source of livelihood in India and Maharashtra, valid for both the rural and the urban. Flagging the stylized fact 'enormity of informal employment' proves to be not so constructive act unless we identify substantive contents, patterns and so on to set the context for public policy discourses. Moreover, assessing the magnitude of discernible deficits in entitlements that emanate from the vicious equilibrium of formal-informal dichotomy in the labour market presumably generates useful cues to ideate the themes and actions for initiating progressive reforms to make informal employment a decent option of livelihood.

We use unit records of NSS employment and unemployment survey for the analysis. Using a multi-stage stratified random sampling procedure National Sample Survey Organisation (NSSO) identifies the First Stage Sampling Units (FSU) for the rural and the urban from census villages and urban frame survey, respectively. Then, the Household in both the sectors turns out to be the Ultimate Stage of Sampling (USU). Roughly the data collection process in NSS rounds on Employment and Unemployment lasts twelve months. We obtained estimates from two large sample quinquennial surveys -61st round for the year 2004-05 and 66th round for the 2009-10, and 68th round, for the year 2011-12, which is similar to previous quinquennial rounds in terms of sample size, research design, and schedule. The knowhow of estimation included four steps: procuring unit records, transforming raw data to a database, integrating multiple levels of data, and weighting the data by multipliers. First, we purchased text files and other instructional documents from NSSO. Second, the raw data were imported to a database. Third, by merging multiple levels of data (e.g. household being one level, person being another level, and so on), we integrated different levels to one data base. Fourth, to generate estimates of labour force and employment, we weighted the database by multipliers, given by NSSO. We delimit our analysis to persons who are 15 years and above, residing in Maharashtra. Sample sizes of persons who 15 years and above in Maharashtra with respect to 61st, 66th and 68th rounds are 33215, 26561, and 26545, respectively.

The paper is organised into four sections. Composition of labour force and employment in Maharashtra is presented in section 2. In section 3, we discuss changes in informal employment during the period 2004-2005 - 2011-2012, and capture the contrast between formal and informal employment in

educational attainment and skill, working conditions, and social security entitlements. Section 4 concludes the paper, throwing public policy scenarios that may catapult to transform informal employment to a more decent stream of livelihood.

2. Composition of Labour Force and Employment in Maharashtra

We view population as an aggregate of persons who are in labour force and persons who are not in labour force. While for a person to willingly participate in labour market requires him or her to fulfil the legal age, s/he presumably accepts the opportunity that pays the work. If the person is engaged in a paid work, the engagement is called 'employed'. Supposing a person is willing to work for a pay, but s/he has not got an opportunity yet, then the status is 'unemployed'. Drawing cues from the Employment and Unemployment Survey by NSSO, Government of India, 'employed' consists of three categories: self employed, regular salaried and wage, and casual wage labour. As shown in Figure 1, composition of population in Maharashtra State in 2011-2012, for the age group of 15 years and above, appears to be discernibly different for male and female. Close to 70% of female belong to the category of not in labour force while the same category subsumes less than one fourth of male. For male, self employed turns to be the largest category (35%), followed by the category regular salaried and wage (24%). Leaving aside unemployment and not in labour force, for female, self employment emerges as the principal category of employment, followed by casual wage and regular salaried and wage. It would be interesting if we juxtaposed patterns that emerged from the rounds of survey with the patterns in figure 1.

Table 1 compares three rounds: NSS 61st Round for 2004-2005, NSS 66th Round for 2009-10, and NSS 68th Round for 2011-12. An interesting observation from Table 1 is marked differences in the composition of population, labour force, and employment with respect to rural and urban sectors. Interestingly, for urban male, regular salaried and wage persists to be the principal category in the distribution, varying in the range of 35% to 40% during 2004-05 – 2011-2012. Quite important, while reporting proportionate changes in the magnitude, the order of categories appears to be tenacious in nature over the temporal span being used in this paper. Disparity between male and female in labour force articipation seems to be vividly portrayed by the enormity of urban women in the category 'not in labour force', varying in the range of 77% to 80%. However, the rural female shows a much lower count for the category 'not in labour force', ranging from 41% to 59%. While the rural male depends heavily on both casual and self employment for shaping the livelihoods, urban male's dependence on casual employment seems to be of a perceptibly lower magnitude, albeit the enormity of self employment

We decompose self employment into three: own account workers, employer, and helper in household enterprise. While we retain regular salaried and wage intact, casual employment is classified into two: employment in public works, and other forms of casual work. Not in labour force consists of six subcategories such as attended educational institution, attended domestic duties and so on (Table 2). It is worth noting that for both male and female the category 'employer' during 2004-05 - 2011-12 remains

visibly a lower magnitude. Within the category of self employment own account work emerges as the principal category, while, for female, helper in household enterprise is the largest category. As shown above, as regards regular salaried wage employment there appears to be discernible levels of higher disparity between male and female; the former reports much higher percentage than the latter. Despite the imperceptibility of public works, casual work continues to absorb a large pool of male and female labour force. Quite noticeably, two major categories in not in labour force are 'attended educational institution' and 'attended domestic duties'. The second category 'attended domestic duties' turns out to be the largest category for female while, for men, this category is too small. This pattern vividly points to the socio-economic-political structural bias of coercing women to devote unpaid domestic chores, ascribing stereotype role to women, thus, generating abysmally lower employment rates for women, and discerningly higher employment participation of men. Like elsewhere in India, Maharashtra too provides evidence for the prevalence of work organisation in households that excludes women from employment.



Source: Computed from National Sample Survey 68th Round Unit Records Figure 1: Composition of Labour Force in Maharashtra 2011-12 (15 years and above; Urban + Rural)

Place of	Categories of Labour	Male	Female	Total	Male	Female	Total	Male	Female	Total
Residence										
		2004-05 (61st Round)*		2009-10 (66th Round)			2011-12 (68th Round)			
Rural	Self Employed	40.6%	28.9%	34.8%	37.9%	22.2%	30.1%	41.6%	19.6%	31.0%
	Regular Salaried & Wage	10.0%	1.6%	5.8%	8.3%	1.0%	4.6%	9.8%	1.6%	5.8%
	Casual Wage Labour	30.0%	28.3%	29.1%	33.0%	24.4%	28.7%	26.4%	19.2%	22.9%
	Unemployed	1.7%	0.3%	1.0%	1.2%	0.9%	1.0%	0.8%	0.2%	0.5%
	Not in Labour Force	17.6%	40.9%	29.2%	19.7%	51.5%	35.5%	21.4%	59.4%	39.8%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Urban	Self Employed	28.8%	6.8%	18.4%	24.1%	5.5%	15.3%	26.9%	5.4%	16.4%
	Regular Salaried & Wage	35.4%	10.8%	23.7%	41.5%	10.4%	26.8%	40.2%	11.3%	26.1%
	Casual Wage Labour	10.5%	4.6%	7.7%	8.9%	2.5%	5.9%	6.2%	2.2%	4.3%
	Unemployed	3.6%	1.2%	2.5%	2.3%	1.2%	1.8%	1.4%	0.9%	1.1%
	Not in Labour Force	21.7%	76.6%	47.7%	23.2%	80.5%	50.2%	25.3%	80.2%	52.1%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 1: Composition of Labour Force in Maharashtra (15 years and above)

	(15 years	and abo	ve, orbai	i i iturai)					
			Male +			Male +			Male +
Categories	Male	Female	Female	Male	Female	Female	Male	Female	Female
	2004-	05 (61st Re	ound)	2009-	-10 (66th R	lound)	2011-	-12 (68th R	lound)
		Self	Employed	l (S)					
Worked in household enterprise self- employed own account worker	24.6%	4.0%	14.5%	22.9%	3.4%	13.4%	26.1%	3.2%	15.0%
Employer	2.8%	0.2%	1.5%	1.9%	0.1%	1.1%	1.5%	0.2%	0.8%
Worked as helper in household enterprise	8.3%	15.9%	12.0%	6.9%	11.7%	9.2%	7.3%	9.6%	8.4%
Regular Employed (R)									
Worked as regular salaried wage employee	20.9%	5.3%	13.3%	23.1%	4.9%	14.3%	23.7%	6.1%	15.2%
Casual Employed (C)									
Worked as casual wage labour in public works	0.3%	0.2%	0.3%	0.2%	0.0%	0.1%	0.3%	0.0%	0.2%
Worked in other types of casual work	21.3%	18.5%	20.0%	22.1%	15.2%	18.7%	16.9%	11.3%	14.2%
Unemployed (U)									
Did not work but was seeking and or available for work	2.5%	0.7%	1.6%	1.7%	1.0%	1.4%	1.1%	0.5%	0.8%
	No	ot in Labo	ur force (I	V)	•			•	
Attended educational institution	11.1%	7.2%	9.2%	13.9%	10.6%	12.3%	15.4%	10.2%	12.9%
Attended domestic duties only	0.3%	38.0%	18.7%	0.4%	42.0%	20.6%	0.3%	46.0%	22.5%
Attended domestic duties and was also engaged in free collection of goods for household use	0.0%	3.8%	1.9%	0.1%	5.1%	2.5%	0.1%	5.7%	2.8%
Rentiers, pensioners remittance recipients	2.6%	1.0%	1.8%	2.8%	1.1%	2.0%	3.0%	1.4%	2.2%
Not able to work due to disability	1.9%	1.4%	1.7%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%
Others	3.4%	3.9%	3.6%	2.1%	2.9%	2.5%	2.3%	3.7%	3.0%
Population (15 years and above)									
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Key Ind	icators						
Employed (E) = S + R + C	78.1%	44.0%	61.5%	77.1%	35.3%	56.8%	75.7%	30.5%	53.7%
Labour Force (L) = Employed + Unemployed	80.7%	44.7%	63.1%	78.8%	36.3%	58.1%	76.8%	31.0%	54.6%
Rate of Unemployment = $(U/L)*100$	3.1%	1.5%	2.6%	2.1%	2.8%	2.4%	1.4%	1.6%	1.5%
Not in Labour force (N)	19.3%	55.3%	36.9%	21.2%	63.7%	41.9%	23.2%	69.0%	45.4%

Table 2: Decomposition of Population and Labour Force in Maharashtra (15 years and above: Urban + Rural)

Source: Computed from National Sample Survey 61st, 66th, and 68th Rounds Unit Records

Moreover, the disparity between male and female in labour force and employment is vividly sketched in Table 3. We compute number of females per 1000 males for the categories of Labour Force. Except for the category 'Worked as helper in household enterprise' in employment, ratios that have been computed are lesser than 1000, clearly capturing male dominant work spaces across time and categories. In two categories "Attended domestic duties only" and "Attended domestic duties and was also engaged in free collection of goods for household use" sex ratios are unevenly skewed towards female, corroborating the previous discussion that deep in our socio-economic-political systems and structures, certain roles such as "domestic duty for women" seems to be coerced to persons who are participating in the labour market.

(15	years and; Urban + Ru	iral)	
	Number of females		
	per	Number of females per	Number of female per
Employment Status	1000 males	1000 males	1000 males
	2004-05 (61st Round)	2009-10 (66th Round)	2011-12 (68th Round)
Worked in household enterprise self-employed	153	139	117
own account worker			
Employer	62	54	120
Worked as helper in household enterprise	1,822	1,606	1,246
Worked as regular salaried wage employee	240	201	244
Worked as casual wage labour in public works	590	46	94
Worked in other types of casual work	826	650	634
Did not work but was seeking and or available for work	257	579	428
Attended educational institution	622	722	624
Attended domestic duties only	1,11,639	1,10,683	1,57,510
Attended domestic duties and was also engaged in free collection of goods for household use	90,445	80,860	45,123
Rentiers, pensioners remittance recipients	370	383	442
Not able to work due to disability	677	959	930
Others	1,113	1,299	1,489
Total	952	946	945

Table 3: Number of females per 1000 males for the categories of Labour Force in Maharashtra

As depicted in Table 4, during 2004-05 - 2011-12, regular salaried wage employment reports highest Compound Annual Growth Rate (CAGR) (4%) while casual wage labour shows a deceleration (-2%). During this period, self employment grew at the rate of 0.4. Overall, the share of self employment in total employment varies from 42% to 46%, emerging as the largest category. The share of regular salaried wage employment increased from 22% to 28%. On the other hand, the share of casual employment decreased from 73% to 69%, while sector's share in regular employment increased from 21% to 26%. For the casual employment, sector's share varies in the range of 84% to 86%.

Quite important, we disaggregate social categories by employment (Table 5). Following the system of classification used in NSS interview schedule, social categories consist of Scheduled Tribe (ST), Scheduled Caste (SC), Other Backward Classes (OBC) and others. In 2011-12, for ST, casual wage was the largest category (51%), followed by self employed (35%) and regular employment (14%). Interestingly, casual wage remains as the largest category for SC as well (44%), followed by regular (29%) and self employment (27%). However, for OBC, self employment is the largest category (49%), followed by regular and casual, 26% and 25%, respectively. More or less same order, as applicable to self employment, is valid for the category 'others' as well.

Source: Computed from National Sample Survey 61st, 66th, and 68th Rounds Unit Records

	2004-05 (61st Round)	2009-10 (66th Round)	2011-12 (68th Round)	Compound Annual Growth Rate (CAGR) 2004-05 - 2011-12 (Percentage)
Employment Catego	pry (Frequency) (Male + F	emale; Urban + Ru	ral)	
Self Employed	1,81,13,190	1,66,10,364	1,87,07,701	0.40
Regular Salaried & Wage	85,81,359	99,87,686	1,17,03,065	3.95
Casual Wage Labour	1,30,94,443	1,31,69,618	1,10,42,065	-2.11
Total	3,97,88,992	3,97,67,668	4,14,52,831	0.51
Employment Category (Per	rcentage Distribution) (Ma	ale + Female; Urba	n + Rural)	
Self Employed	45.5	41.8	45.1	
Regular Salaried & Wage	21.6	25.1	28.2	
Casual Wage Labour	32.9	33.1	26.6	
Total	100.0	100.0	100.0	
	Share of Rural S	Sector (Percent)		
Self Employed	73	72	69	
Regular Salaried & Wage	21	18	26	
Casual Wage Labour	86	86	84	

Table 4: Size of Employment, Growth Rate, Composition and Share of Rural Sector in Maharashtra (15 years and above employed persons)

Source: Computed from National Sample Survey 61st, 66th, and 68th Rounds Unit Records

		,	/		
Social Category	Self Employed	Regular Salaried & Wage	Casual Wage Labour	Total	
		2004-05 (61st Ro	und)		
Scheduled Tribe	32.5%	8.5%	59.0%	100.0%	
Scheduled Caste	26.7%	22.4%	50.9%	100.0%	
Other Backward class	46.0%	17.8%	36.1%	100.0%	
Others	55.3%	27.2%	17.5%	100.0%	
	2009-10 (66th Round)				
Scheduled Tribe	35.5%	12.0%	52.4%	100.0%	
Scheduled Caste	21.1%	25.9%	52.9%	100.0%	
Other Backward class	42.2%	19.7%	38.1%	100.0%	
Others	50.5%	32.7%	16.8%	100.0%	
		2011-12 (68th Ro	ound)		
Scheduled Tribe	34.7%	14.4%	50.9%	100.0%	
Scheduled Caste	27.4%	28.9%	43.8%	100.0%	
Other Backward class	49.1%	26.3%	24.6%	100.0%	
Others	50.9%	32.8%	16.3%	100.0%	

Table 5: Social Category and Employment Status in Maharashtra (15 years and above employed persons; Rural + Urban; Male + Female)

Table 6 depicts disaggregating of employment by age interval. We divide age into three categories: 15-34, 35-59, and 60 and above. During 2004-05 - 2011-12, the category 15-34 remained the largest, ranging from 50% to 51%. However, for self employment, 35-59 was the largest category. As far as casual wage is concerned, except 2004-05, the category 35-59 was the largest category. Quite important, for the age group 60 and above, absorption in regular job appears to be hard to happen while other two employment categories seem to be relatively more absorptive. Figure 6 portrays the relation between educational attainment and employment. While regular employment is skewed towards tertiary education (graduate and above), 'not literate' forms the largest category in casual employment. With regard to self employment, middle schooling (7 years of schooling) is the largest category. Table 6 cross tabulates employment and economic activity. We classify economic activity into three: primary, secondary, and tertiary. The primary consists of natural resource based activities such as agriculture. Manufacturing is the principal constituent of the secondary sector. All services subsume in the tertiary sector. We computed these three categories by using National Industrial Classification (NIC) 2008 codes. During 2004-05 -2011-12, while the tertiary sector forms the largest chunk (close to two third) in regular employment, the primary sector constituted the major pies of other two categories. As portrayed in figure 3, while 96% of employment in primary sector is based in rural sector, the share of urban in secondary and tertiary are 64% and 78%, respectively.

(15 years and above er	npioyed person	15, Rutar + OR	Dall, Male + I	(emaie)
		Age In	terval	
Employment Status	15-34	35-59	60 and above	Total
		2004-05 (61	st Round)	
Self Employed	41.4%	47.1%	11.5%	100.0%
Regular Salaried & Wage	50.1%	48.2%	1.6%	100.0%
Casual Wage Labour	49.2%	44.1%	6.7%	100.0%
		2009-10 (66	th Round)	
Self Employed	37.8%	49.0%	13.2%	100.0%
Regular Salaried & Wage	50.1%	48.1%	1.8%	100.0%
Casual Wage Labour	44.2%	47.8%	8.1%	100.0%
		2011-12 (68	th Round)	
Self Employed	36.8%	52.3%	11.0%	100.0%
Regular Salaried & Wage	51.3%	47.4%	1.3%	100.0%
Casual Wage Labour	43.5%	48.2%	8.2%	100.0%

Table 6: Age Interval and Employment Status in Maharashtra (15 years and above employed persons; Rural + Urban; Male + Female)



Source: Computed from National Sample Survey 68th Round Unit Records Figure 2: Educational attainment and Employment Status in Maharashtra 2011-12 (15 years and above employed persons; Urban + Rural, Male + Female)

(15 years and above empl	loyeu persons, Ruiai	+ Ofball, Male + Pelliale)					
	Primary	Secondary	Tertiary	Total			
		2004-05 (61	st Round)				
Self Employed	62.2%	10.6%	27.2%	100.0%			
Regular Salaried & Wage	4.9%	31.0%	64.1%	100.0%			
Casual Wage Labour	78.8%	16.9%	4.3%	100.0%			
Total	55.3%	17.1%	27.6%	100.0%			
		2009-10 (66th Round)					
Self Employed	62.7%	8.8%	28.5%	100.0%			
Regular Salaried & Wage	1.6%	30.6%	67.8%	100.0%			
Casual Wage Labour	75.8%	17.1%	7.1%	100.0%			
Total	51.7%	17.0%	31.3%	100.0%			
		2011-12 (68th Round)					
Self Employed	59.2%	11.6%	29.2%	100.0%			
Regular Salaried & Wage	1.6%	31.8%	66.7%	100.0%			
Casual Wage Labour	74.9%	19.9%	5.2%	100.0%			
Total	47.1%	19.5%	33.4%	100.0%			

Table 6: Economic Activity and Employment Status in Maharashtra (15 years and above employed persons; Rural + Urban; Male + Female)



Source: Computed from National Sample Survey 68th Round Unit Records

Figure 3: Economic Activity and Place of Residence in Maharashtra 2011-12 (15 years and above employed persons; Urban + Rural)

3. Informal Employment in Maharashtra

In this section we carve out a niche to discuss formal-informal duality of employment that prevails in Maharashtra. Using NIC 2008, we disaggregate primary, secondary, and tertiary economic activities into 20 categories such as agriculture, forestry and fishing, mining and quarrying, manufacturing, construction, information and communication, education and so on. As depicted in Table 7, agriculture, forestry, and fisheries accounts for 47% of employment. Manufacturing is the second largest sector of employment (12.4%), followed by construction (6.58%). However, those sectors that absorb large chunk of labour force do not purport to be the destination for persons who attained tertiary education (graduation and above), showing quite lower proportion of this category in employment. However, in economic activities such as information and communication and financial insurance activities persons who attained tertiary education constitutes two third of employment. Interestingly, there appears to be a direct relation between wage arte and percentage of graduates and above in employment. While agriculture shows the lowest average daily wage (Rs 100), information and communication reports the highest wage (Rs 833). Moreover, median age in information and communication is the lowest (30) whereas Electricity, Gas, Steam and Air Conditioning Supply reports the highest median age (47). Against this backdrop, it is important to assess the quality of employment as well, in particular the entitlements being carried by the employment. The social security, as a principal entitlement, seems to be pivotal in defining the quality of employment. In our analysis, we counted employed persons with at least any of social security entitlements such as provident fund (PF), pension, insurance, gratuity, medical claim, and maternity benefits as formal, while employment that does not carry any of social security provisions is categorised as informal. As depicted in Table 7, percentage of informal employment varies across economic

activities. Out of 20 economic activities 14 report that proportion of informal employment is not less than three fourth while more than 95% of employment is informal in five activities (e.g. Agriculture). On the other hand, formal employment exceeds 50% in 5 activities (Information and Communication). On the whole, 88% of persons are employed informal, not entitled to any social security provisions.

Economic Activities (National Industrial Classification 2008)	Percentage Distribution of Employment (Estimated Employment =41452831)	Percentage of Persons Who attained Graduation and Above	Median Daily Wage (Indian Rupees)	Percentage of Informal Employment	Median Age
Agriculture, Forestry and Fishing	46.96	2.40	100	99.84	40
Mining and Quarrying	0.15	9.54	400	42.61	42
Manufacturing	12.44	16.30	219	78.01	35
Electricity, Gas, Steam and Air Conditioning Supply	0.29	43.58	571	20.28	47
Water Supply, Sewerage, Waste Management and Remediation Activities	0.20	6.05	143	75.69	40
Construction	6.58	4.24	150	96.51	33
Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles	9.89	15.27	167	96.30	36
Transport and Storage	5.22	12.63	267	78.06	36
Accommodation and Food Service Activities	1.75	7.83	214	93.01	32
Information and communication	1.36	65.84	833	38.80	30
Financial and Insurance Activities	1.87	63.26	589	41.98	33
Real Estate Activities	0.37	33.12	233	85.17	40
Professional, Scientific and Technical Activities	0.81	56.82	536	77.18	35
Administrative and Support Activities	1.01	27.37	214	82.06	34
Public Administration and Defence, Compulsory Social Security	2.14	29.05	500	16.06	42
Education	3.43	55.58	500	35.23	38
Health and Social Work	1.14	48.03	250	67.38	34
Arts, Entertainment and recreation	0.29	25.59	214	100.00	33
Other Activities	2.24	9.48	143	94.54	36
Activities of Household as Employers, Undifferentiated Goods and Services Producing Activities of Household for Own use	1.85	0.14	133	97.78	32
Total	100	12.20	150	88.06	36

Table 7: Economic Activity, Higher Education, Wage Rate, Informal Employment and Medan Age in Maharashtra (15 years and above employed persons; Rural + Urban; Male + Female)

Source: Computed from National Sample Survey 68th Round Unit Records

Percentage of formal employment, as shown in figure 4, appears to be sensitive to employment status. During 2004-05 – 2011-12, share of informal employment hovers around 100% in self employment and casual employment, while the share of formal employment in regular salaries/wage hovered around a half. There appears to be direct relation between percentage of formal employment and educational attainment. As depicted in figure 5, from secondary education upwards share of formal employment appears to increase at an increasing rate. Moreover, positive differential in daily wage rate in favour of formal employment over informal employment appears to directly vary with educational attainment (Figure 6). It is noteworthy that positive differential in favour of formal employment over informal employment appears to be of perceptibly higher magnitude for persons who attained tertiary education (*graduation and abore*).

Further, it is important to note that compared to informal employment formal employment appears to be discernibly benevolent in providing entitlements such as regularity in pay, eligibility for paid leave, and written job contract (Figure 7). Overall, provision of social security appears to be niggardly in coverage and inadequately catering to specific requirements such as social insurance, maternity, and health (Figure 8).



Source: Computed from National Sample Survey 61st, 66nd, and 68th Rounds Unit Records

Figure 4: Employment Status and Percentage of Informal Employment in Maharashtra (15 years and above employed persons; Urban + Rural, Male + Female)



Source: Computed from National Sample Survey 68th Rounds Unit Records





Source: Computed from National Sample Survey 68th Rounds Unit Records

Figure 6: Median Daily Wage and Educational Attainment (15 years and above employed persons; Urban + Rural, Male + Female)



Source: Computed from National Sample Survey 68th Rounds Unit Records





Source: Computed from National Sample Survey 68th Rounds Unit Records

Figure 8: Social Security Benefit (15 years and above employed persons; Urban + Rural) Further, formal employment appears to be sensitive to religion and social category. As depicted in Figure 8, Islam reports the highest percentage of informal employment (93.4%), followed by Hinduism (87.7%), Christianity (87.5%), Buddhism (87%) and so on. In Figure 9, Scheduled Tribe (ST) reports the highest percentage of informal employment (94%), followed by Other Backward Classes (OBC) (89.1%), Scheduled Caste (SC) (88.3%), and others (85.8%).



Source: Computed from National Sample Survey 68th Rounds Unit Records

Figure 8: Percentage of Informal Employment and Religion in Maharashtra (15 years and above employed persons; Male + Female, Urban + Rural)



Source: Computed from National Sample Survey 68th Rounds Unit Records

Figure 9: Percentage of Informal Employment and Social Category in Maharashtra (15 years and above employed persons; Male + Female, Urban + Rural)

So far we rely on frequency distribution, cross tabulation, and graphic presentation to outline diverse patterns. This way of reasoning, however, insulates variables that have been assessed for tabulation from the rest of the system. Undoubtedly, there seems to be no foolproof method of capturing the whole system in entirety. Presumably, an alternative is to resort to multivariate analytical methods such as Ordinary Lease Square (OLS) regression. To outline the impact of select determinants on wage in formal and informal employment, we specify the following equation:

Natural Logarithm of Wage = f (Age, Age Square, Educational Attainment,

Formal Vocational Training, Technical Education, Social Category, Religion, Place of Residence, Sex, Economic Activity, District, Constant, Error)

We apply this model to the data on informal and formal employment separately.

To insulate the estimation from violating fundamental assumptions that OLS estimation has to comply with, we use the robust regression¹ method to estimate coefficients. Results are presented in Table 8. Apart from expected results such as positive coefficient of age and negative coefficient, and negative wage differential with respect to female and so on, most pivotal result that arises from this exercise, applicable to both the sectors, is that compared to the reference category 'Not Literate', coefficient-magnitude of proportionate change in wage with respect to change in the category-tends to progressively go up with the level of educational attainment. While proportionate change in wage does not appear to be sensitive to vocational training, changing the category from no technical qualification to technical qualification pushes wage up. Moreover, as shown in figure 10, quite vividly magnitudes of coefficient for formal employment appear to be higher than that of informal employment.

¹ See Hamilton (1991)

Table 8: Determinants of Wage in Manarashtra 201	1-12 (Forn	nai and in	iormai .	Employme	nt)	
Dependent Variable	Informal Employment N= 4264 E(75 4299) = 59.71			Formal Employment $N = 1873$ $E(74, 1708) = 10.52$		
Natural Logarithm of Wage (ROBUST REGRESSION)	N= 4304, F Prob 2	> F = 0.00	- 58.71 000	Prob > F = 0.0000		
		Standard			Standard	
	Coefficient	Error	p> t	Coefficient	Error	p> t
Age	0.04	0.00	0.00	0.06	0.01	0.00
Age Square	0.00	0.00	0.00	0.00	0.00	0.00
Educational Attainment (R	eference Cate	gory: Not Li	terate)			
Just Literate	0.06	0.03	0.05	0.44	0.13	0.00
Primary	0.09	0.03	0.00	0.41	0.12	0.00
Middle	0.10	0.03	0.00	0.40	0.10	0.00
Secondary	0.21	0.03	0.00	0.50	0.09	0.00
Higher Secondary/Diploma	0.30	0.03	0.00	0.79	0.09	0.00
Graduate	0.57	0.04	0.00	0.98	0.09	0.00
Post Graduate	0.79	0.06	0.00	1 22	0.10	0.00
Employ	yment Status	0.000	0.000		0110	0.000
(Reference Category: Self Employment for Informal En	ployment &	Regular Emp	oloyment	for Formal Er	nployment)	1
Regular Employment	0.34	0.05	0.00			
Casual Employment	0.13	0.05	0.01	-0.88	0.17	0.00
Formal Vocational Training (Re	ference Categ	ory: No form	al trainin	lg)		
Formal Vocational Training	0.02	0.03	0.57	0.02	0.04	0.50
Technical Training (Reference	e Category: N	o Technical '	Training)			
Technical Training	0.18	0.04	0.00	0.20	0.04	0.00
Social Group (Referen	ce Group: Sch	eduled Trib	e)			
Scheduled Caste	0.08	0.03	0.01	0.09	0.07	0.20
Other Backward Classes	0.09	0.03	0.00	0.09	0.06	0.16
Others	0.16	0.03	0.00	0.22	0.06	0.00
Religion (Referen	nce Group: Hi	induism)				
Islam	0.01	0.02	0.71	-0.06	0.06	0.27
Christianity	0.01	0.02	0.11	-0.16	0.13	0.21
Sithism	0.48	0.13	0.00	0.05	0.20	0.79
	0.40	0.13	0.56	0.20	0.15	0.17
Buddhism	0.09	0.04	0.01	0.05	0.07	0.49
Zorosetrianiam	-0.07	0.04	0.01	0.03	0.20	0.42
	(Defension C			0.92	0.29	0.00
Place of Residence	(Reference G	roup: Kural)	0.01	0.51	0.05	0.50
Urban	0.05	0.02	0.01	0.04	0.03	0.20
Sex (Refere	nce Group: M	ale)				
Female	-0.43	0.02	0.00	-0.17	0.04	0.00
Economic Activity (NIC 2008, 1 digit) dummy		Yes			Yes	
District Dummy		Yes			Yes	
Constant	5.44	0.11	0.00	5.50	0.31	0.00

Table 8: Determinants of Wage in Maharashtra 2011-12 (Formal and Informal Employment)

Source: Computed from National Sample Survey 68th Rounds Unit Records



■ Informal ■ Formal

Source: Computed from National Sample Survey 68th Rounds Unit Records

Figure 10: Regression Coefficients (15 years and above employed persons; Male + Female, Urban + Rural)

4. Concluding Remarks

The key insights that emerge from this paper point to the need for a triadic system of skill, working and living and social security and inclusive finance to transform the current system of labour market in Maharashtra more productive and inclusive. Fundamentally, to take off to a desirable trajectory, drawing cues from this paper, labour in Maharashtra has to change employment structure by infusing more skill to trigger off a new spiral of higher productivity and better governance of inclusive provisioning of entitlements such as social security. It is important to note the paper vividly points to the following patterns: persistent exclusion of women from the labour market, inadequate coverage of regular employment in Rural Maharashtra, enormity of working poor who barely earn enough wages to obtain a decent living, abysmal coverage formal employment in most of economic activities, and the need for inclusive higher education and skill up-gradation opportunities. Normatively, the triad of skill, working and living and social security and inclusive finance seems to be a structure that can be tweaked to endeavour towards sustainable and inclusive options. The figure below (Figure 11) encapsulates the suggested model.

Figure 9: Triad of Skill Development, Working and Living, and Social Security and Inclusive Finance

To energise the above model, it is important to visualise and work towards partnerships between workers, employers, financial institutions, educational institutions, the state, workers' collectives, and other relevant constituencies in the labour market.

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