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ECONOMIC GROWTH AND RURAL TRANSFORMATION IN EASTERN INDIA: STRATEGIES FOR INCLUSIVE GROWTH

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ABSTRACT

There is an emerging consensus that the well-being of rural households improve with the blending of farm activities with non-farm economic activities. The diversification of rural livelihood positively impacts the well-being of the rural households. Eastern states however remained laggard in rural transformation due to myriad of endogenous as well as exogenous factors. With uneven distribution of production assets, poor infrastructure and governance, low levels of literacy, skills, awareness and connectivity and limitations of alternative options for livelihood, the high prevalence of poverty in the region becomes the structural corollary. This paper delves into its multiple dimensions of rural transformation with focus on selected eastern states of India. Considering very small landholding of the farmers and thereby negligible employment elasticity to agricultural growth, creation of non-agricultural opportunities, diversification, and transformation of rural economy towards expanding rural non-farm employment are adjunct to the strategies of managing vulnerabilities associated to the region bringing meaningful structural change in the rural socio-economic conditions.

Keywords: Rural transformation, infrastructure, diversification, growth
JEL Classification: E01, F43, J21, L25, O47, Q24, R11,

INTRODUCTION

India has witnessed rapid transformation in the employment structure and source of income in the past couple of decades, which has never been seen ever before. Nationally representative household survey based studies showed high growth in rural economy (Hossain, 2004, Hossain and Byes, 2008, Balagtas *et al.*, 2012, and Papola, 2013) and relatively faster growth in non-farm sector than

the agriculture sector in rural area. Share of agriculture sector in India's gross domestic product (GDP) has declined from about two-third of the rural national domestic product in 1980-81 to about 14 per cent by 2013-14 (Anonymous, 2013-14). Interestingly, the decadal population growth in rural area of agriculture dominated eastern states namely,

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Bihar, Jharkhand and Orissa has been the highest among all the states in India. The share of agriculture and allied sector in these states have reduced sharply in recent years, while more than three-fourth of the population still resides in rural area and mostly depend on agriculture and allied activities. During last decade (2004-2013), share of this sector declined by about 12 per cent in Bihar and about 8 per cent in Orissa, while it has increased marginally in Jharkhand. Although, the overall state economy during the period, has grown faster in three states than that of national average of 7.74 per cent annually. *Albeit*, the performance of agriculture and allied sector have been dismally poor in Bihar and Orissa as compared to overall economic growth. The region is endowed with immense natural resources viz., fertile soil, plenty of water resources, good rainfall, and minerals (Jharkhand and Orissa). Yet, it has continued to remain in the trap of backwardness with extreme poverty and deprivation. It is evident that every third person in the region live in absolute poverty, particularly in rural area and lagged behind with respect to all the development indicators compared to any other major states of India.

The rural sectors in these states are primarily net suppliers of primary produce and generally, the net consumers of secondary and tertiary goods and services. Usually, employment in rural labor markets and agriculture are characterized as casual or informal, requiring low skill and with low productivity and returns. Therefore, development of the rural economy in general and agriculture sector in particular, is a key factor for achieving inclusive growth. Inclusive growth in rural area envisages the change in economic structure, anchored on productivity growth in agriculture, involving a movement of labor away from the traditional sector. It must focus on small and marginal farmers, landless labours, and women who face constraints of capital, land, access to credit market and modern inputs. Globally, it has been realised

that agricultural growth also causes non-agricultural growth, and has a differential impact on employment of the unskilled labor, indirectly reduce economywide labor cost by keeping food affordable (Lanjouw and Lanjouw, 2001). Against this backdrop, the key questions that emerge are- why these states (Bihar, Jharkhand and Orissa) are in such state? What are the drivers of change that contributed to vibrant growth and progress in other states, but not in eastern states? How the ongoing rural transformation influenced the income and livelihood of the rural population? And, finally, what strategies needs to be adopted for inclusive growth in rural area of eastern states? These states are of special significance for International Crops Research Institute for Semi-Arid Tropics, as a flagship project on *Village Dynamics Studies in South Asia* expanded to these states in 2009-10, exploring the dynamics of economic growth and rural poverty at household level.

Recent Economic Growth in Eastern States

Last one decade (2004 to 2013) has been consistent growth phase for the eastern states in India. During this period, 3 poorest states of the country that is, Bihar, Jharkhand, and Orissa performed slightly better than or equally good as compared to the country as a whole. The year 2004-05¹ is considered to have structural break in Indian agriculture (Deokar and Shetty, 2014 and Chand and Shinoj, 2012). Therefore, overall economic growth and that

¹Several policy measures were introduced to boost agricultural production and income of the population depending on this sector. During 2005-06 a National Horticulture Mission became operational. Much awaited reform in domestic agricultural marketing was initiated through the formulation of a model Agricultural Produce Marketing Committee (APMC) Act in 2003. The launch of the Bharat Nirman project in 2005-06 was significant move by the government to upgrade rural infrastructure comprising six components, namely, irrigation, electrification, roads, water supply, housing and telecom connectivity. Finally, the most vital policy initiative was the targeted doubling of credit flow to agriculture within a period of three years, 2004-05 to 2007-08.

of agriculture and allied sector in three states were compared for 2004-05 to 2012-13 period and presented in Table 1. It may be observed from Table 1 that the Gross State Domestic Product (GSDP) of these states has grown by 7.5 to 10 per cent annually. These states individually contributed only 2-3 per cent to the Gross Domestic Product (GDP) of the country. The contribution of agriculture and allied sector in GSDP of Bihar and Orissa has decreased by 10 and 6 per cent respectively, while in Jharkhand, it has increased marginally. But, in all three states, its contribution is not only much lower than that from industry or service sector, but its growth is also the slowest in past decade. It gives rise to growing rural-urban divide and rising labour productivity in two sectors leading to rural-urban migration.

Although, the three states' economies has been growing with 8-10 per cent annually since last one decade, however it has not been the fastest among all the states. Several other major states of the country has also grown by more than 9 per cent during same period like Andhra Pradesh, Gujarat, Haryana, Maharashtra, Tamil Nadu, etc. This raises serious doubt of any possible convergence in economic growth of eastern states with other major states. Table 2 clearly exhibits that the eastern states were at

the bottom in 2004-05 in terms of per capita NSDP and even in recent years (2012-13) continue to remain at the bottom. Other states like Tamil Nadu, Gujarat, Maharashtra, Haryana and Sikkim has taken non-comparable lead. Per capita NSDP (at 2004-05 prices) for Bihar, Jharkhand and Orissa states increased from `7914, `18510 and `17650, respectively in 2004-05 to `15650, `28882 and Rs. 25891, respectively in 2013-14. The overall income of the population has increased by 98 percent in Bihar, 56 percent in Jharkhand and 47 percent in Orissa during this period. Though, these levels of income were achieved by several other major states even before 2004-05.

Monthly per capita expenditure (MPCE) is usually considered as proxy for income of the household. MPCE in rural area of Bihar, Jharkhand and Orissa during 2004-05 and 2011-12 has been estimated across different income decile of the population using 61st and 68th Survey Round, respectively of National Sample Survey Organisation. The results were also compared with those of other progressive states like Andhra Pradesh, Tamil Nadu, Punjab, Maharashtra and Gujarat (Annexure I). It was observed that income inequality has increased in all these states in rural area. Income for the bottom 20-30 per cent

Table 1: Share of major sectors in GSDP during 2004-2013 at 2004-05 prices

	(Percent)									
Sector	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
<i>India</i>										
Agriculture	16	15	15	14	13	12	12	12	12	12
Industry	28	28	29	29	28	28	28	28	27	26
Service	53	54	54	54	56	57	57	57	59	60
<i>Bihar</i>										
Agriculture	27	25	27	24	24	19	20	21	19	17
Industry	14	15	15	17	18	19	21	22	22	23
Service	55	55	53	55	55	58	56	55	56	57
<i>Odisha</i>										
Agriculture	11	12	13	12	15	12	11	13	13	13
Industry	52	47	43	48	41	40	42	42	41	40
Service	33	37	39	36	40	44	44	42	43	45
<i>Jharkhand</i>										
Agriculture	19	18	17	16	15	16	15	13	14	13
Industry	34	33	36	38	37	34	34	35	35	35
Service	42	44	44	43	45	47	48	49	48	49

Table 2: Net state domestic product per capita per annum at current prices

State	2004-05	2012-13
Bihar	7914	27202
Uttar Pradesh	12950	33616
Manipur	18640	36937
Jharkhand	18510	40238
Assam	16782	40475
Madhya Pradesh	15442	44989
Odisha	17650	49241
Meghalaya	24086	52090
Jammu and Kashmir	21734	52250
Chhattisgarh	18559	52983
Rajasthan	18565	59097
Tripura	24394	60963
West Bengal	22649	61352
Mizoram	24662	63413
All India	24143	67839
Nagaland	30441	70274
Arunachal Pradesh	26721	76218
Karnataka	26882	76578
Andhra Pradesh	25321	78958
Himachal Pradesh	33348	83899
Punjab	33103	84526
Kerala	31871	88527
Uttarakhand	24726	92191
Gujarat	32021	96976
Andaman and Nicobar	40921	97687
Tamil Nadu	30062	98628
Maharashtra	36077	10399
Puducherry	48302	114034
Haryana	37972	119158
Chandigarh	74173	141926
Sikkim	26690	151395
Delhi	63877	192587
Goa	76968	200514

Souee: Authors compilation

population has increased with much slower rate than those for top 20-30 per cent population. Therefore, it may be concluded that in spite of sound agricultural as well as other sectors' growth in eastern states, per capita income is still very low as compared to other states. Secondly, even if overall economic growth has been high, the spill-over effect or trickle-down effect of it has not been uniform in rural area. Only top 20-30 per cent of household could ride the economic growth wave of the states.

Demographic Structure in Eastern India

Broadly speaking, while the demographic centre of gravity (population pressure) has

been shifting in the northern and eastern direction in India, the economic centre of gravity (economic growth) has been moving in the opposite direction. The western and southern states have continuously experienced faster economic growth, while the northern and eastern states lagged behind. As a result, the per capita income differentials have been widening even further (Kurian, 2007). With a staggering 40 to 49 per cent of total population in selected 3 eastern states are under 20 years of age, could turn out to be its greatest asset-or a demographic disaster if it doesn't get appropriate work opportunities. Bihar is the third largest populated state (8.58 percent) with the highest population density, while Orissa and Jharkhand has about 3.47 and 2.73 percent of country's population, respectively in 2011 (Table 3). Further, more than three-fourth of total population lives in rural areas. The continuous and rapid growth in population in these states also led to further pushing the population density upward.

Low levels of literacy and skills result in lower earning capacity and conspire to keep people in the poverty trap, preventing them from embarking on new activities to earn income or build assets (DFID, 2012). Bihar and Jharkhand suffers badly from such nexus, where average rural literacy is far below than the national average. Though, the gender gap in literacy has been declining over the decades, still there exists considerable difference (20 per cent). Furthermore, hardly 17-18 percent of female population in Bihar and Jharkhand are literate above primary level. Low level of female literacy in the region is often associated with poor access to health and family planning facilities, poor awareness of proper child care and other hygienic practices which adversely affect the productivity of labour and welfare of the whole family. Although evidence on the relevance of educational level to farm incomes varies (Rodriguez and Smith, 1994), the poor are excluded from well-paid wage or profitable self-employment opportunities in the non-farm sectors. In these states, malnutrition among

Table 3: Population density and rural demography in eastern states

States	Population density	Rural population*	Percentage of rural population (2011)				Children (<5 years) under-weight**
			Illiterate		Literate above primary level		
			Male	Female	Male	Female	
Bihar	1102 (8.58)	88.7	32	51.1	31.3	16.7	56
Jharkhand	414 (2.73)	75.95	32.1	49	30.2	17.8	57
Orissa	269 (3.47)	83.32	29	42.9	38.9	26.9	41
All India	382 (100.00)	68.84	28.4	44.5	36.1	33.9	47

Source: Census (2011); #NSSO (2014)

*Percentage of total population in the state living in rural areas

**National Family Health Survey (NHFS)

Figures within parentheses indicate percentage population share of the state in total population of India

children below 5 years of age are rampant. It also affects negatively the future development and ultimately affecting the labour productivity.

Land and Agricultural-based Resources

Poverty persists in any region because of limited and inequitable access to productive resources, such as land, water, improved inputs and technologies, easy credit, as well as vulnerability to drought and other natural disasters. It is evident from the Table 4, eastern states are not only predominantly rural in nature but also have very large share of marginal farmers (68.2 to 91 percent). Average size of operational holding of these marginal farmers in Bihar (0.25 ha), Jharkhand (0.41ha) and Orissa (0.57 ha) are too small for making it economically viable for sustaining the livelihood. Further, the land quality differs

Table 4: Land distribution among marginal section of the society

Eastern states	Percent of marginal farmers (<1ha land holding)	Average land holding of marginal farmers (ha)
Bihar	91.0	0.25
Jharkhand	68.2	0.41
Orissa	72.2	0.57
India	67.0	0.38

Source: Census 2011, Agriculture Census 2010-11

Note: Overall average land holding in Bihar, Jharkhand and Orissa are 0.39 ha, 1.17 ha and 1.04 ha, respectively.

widely among these small holdings (von Braun *et al.*, 2009). In Punjab, even households with holdings up to 4 ha find it increasingly difficult to meet their living expenses from farming alone (Singh *et al.*, 2007 and Singh and Bhogal, 2014). Chand *et al.* (2012) also cautioned that if agriculture were to be the sole source of livelihood, a majority of the households cultivating such tiny pieces of land would be poor.

Basic and Rural Infrastructure in Eastern States

Structural transformation in any region depends largely on the availability and accessibility of different infrastructure in the region. Chakraborty and Guha (2009) constructed composite index of various infrastructure-related variables and ranked all the states in India. It was observed that eastern states ranked most poorly among all the 20 major states in all the parameters (Table 5).

Bihar, Jharkhand and Orissa have been deficient in physical infrastructures like electricity connectivity, *pucca* drainage system, drinking water, canal and tube wells, the distance from metalled roads and banks. These states are also way behind in terms of social infrastructure like access to veterinary hospital, primary health centres, primary and secondary schools, vocational training

Table 5: Ranking of eastern states in terms of infrastructure and public-private supports

State	Score in Physical and social infrastructure	Score in reach of Govt Support Programmes	Score in Presence of Private Initiatives	Overall Score	¹ Rural persons below poverty line, % (2011-12)
Bihar	1.75 (19.00)	2.2 (16.00)	0.69 (18.00)	1.8 (18.00)	34.06 (778.00)
Jharkhand	1.84 (18.00)	1.14 (19.00)	0.15 (20.00)	1.51 (20.00)	40.84 (748.00)
Orissa	1.48 (20.00)	3.92 (12.00)	0.73 (17.00)	1.74 (19.00)	35.69 (695.00)
Andhra Pradesh	3.73 (11.00)	6.52 (4.00)	6.94 (3.00)	5.04 (4.00)	10.96 (860.00)
Punjab	6.08 (3.00)	1.55 (17.00)	3.18 (12.00)	4.53 (6.00)	7.66 (1054.00)
Tamil Nadu	5.06 (4.00)	6.36 (5.00)	7.36 (2.00)	6.2 (3.00)	15.83 (880.00)

Source: Chakraborty and Guha (2009)

¹Planning Commission (2013)

Figures within parentheses indicate the state's rank in respective category.

¹Figures within parentheses indicate rural poverty line i.e. per capita expenditure (Rs per month)

centres, etc. Similarly, coverage of government support programmes on creation of employment and presence of private initiatives in the states like reach of self-help groups (SHGs) and co-operatives were considered for ranking of the states. These facilities together are capable of improving the livelihood condition of rural population owing to the potentially lower transaction costs and development of opportunities for non-farm sectors. In Punjab, it may be observed that if very good infrastructure only is ensured, poverty can be reduced even without much presence of other government programmes and private initiatives like SHGs or co-operatives.

As can be observed from Table 6, the selected states have about 3-4 per cent each of total net sown area of the country, barring Jharkhand. However, it hardly share 3 per cent of total surfaced road in India, less than 0.5 percent of total electricity consumption in agriculture, less than 5 percent of total institutional credit disbursed in agriculture and allied sector and equally dismal spread of number of factories, which could have stimulated the non-farm employment in the region. Besides, condition of irrigation particularly in Jharkhand and Orissa states, is more precarious, restricting the growth of

profitable crop diversification towards high value crops. Near absence or poor coverage of these variables usually raise the cost of crop production, the transaction cost and the cost of credit for all purposes.

Table 6: Share of different resources of eastern states in India

Particulars	(Percentage)			
	Bihar	Jharkhand	Orissa	India
NSA of India (2010-11)	3.71	0.77	3.31	100 (141.6)*
NIA of India (2010-11)	4.76	0.2	2.01	100 (63.6)*
Length of surface road (2011)	2.44	0.7	2.51	100 (2.34)*
ECA, (2010)	0.31	0.06	0.14	100 (126377)**
CDA, -2012	2.33	0.78	1.58	100 (583340 crores)
No. of factories, (2011)	1.49	1.17	1.23	100 (217554)

Source: Census, 2011; Agricultural Statistics at a Glance, 2013; Basic Road Statistics of India, Govt. of India (2012); Reserve Bank of India; Ministry of Labour & Employment, Govt. of India.

Figures within parentheses are respective total for India
NSA- Net sown area; NIA- Net irrigated area; ECA- Electricity consumption in agriculture; CDA- Credit disbursement in agriculture

* mha, ** GWh

There are long-standing debates on the viability and the role of small farms in economic development (Schulz, 1964, Von Braun and Kennedy, 1995 and Hazell *et al.*, 2010). Moreover, the optimal farm size is considered the one under which labour productivity of the agricultural sector approaches that of the non-agricultural sector, given the same quality of labour. On the other hand, according to NCAER (1996), nearly 70 per cent of the landless wage earners and nearly 45 per cent of the marginal farmer households in India live below poverty line. Despite all the challenges smallholders face, they continue to increase in number across India, particularly in eastern region. There are about 20 million farmers today who farm less than one ha of land in three states (14.74 million in Bihar, 1.85 million in Jharkhand and 3.37 million in Orissa out of 92.36 million in the country) and struggling to make an adequate living from farming. Although, there is a lot of regional variation, the overwhelming story is, rising marginal farms, shrinking farm sizes and increased income diversification. Despite significant growth at macro-level (NSDP or GSDP), there is no sign of farm consolidation in eastern states. Rather, small farmers are further fragmenting and becoming marginal farmers while marginal farmers are migrating to cities or diversifying into non-farm activity. However, transitions to such a state can take a longer time due to institutional rigidities, transformation risk, and policies.

Appropriate communication technologies is considered to be one of the best leveller in the way of inclusive growth of any economy. The Internet and related information and communication technologies (ICTs) have the potential to play a pivotal role in helping achieving more inclusive innovation and development. According to Census 2011, Bihar, Jharkhand and Orissa states ranks lowest among all the states in terms of computers and internet penetration. Only 7.1 percent household has computer and less than one percent have internet connection in Bihar

state. While in Jharkhand and Orissa, households having computers account for 6.9 and 5.1 percent, respectively and with internet, it further reduces to 1.5 and 1.4 percent, respectively as compared to national average of 3.1 percent (Table 6). With a very low awareness level, several benefits of internet in eastern India seems to be in its infancy and there is a pressing need to educate and inform the user of the benefits of the internet services to drive the growth of internet usage.

Rural Transformation- Multiple Dimensions

Eventually, the diversity of production and economic activities of the people results into income flows from diverse sources. Even in the heartland of *Green Revolution* (Punjab and Haryana), rural people who had prospered with the revolution and were connected closely to the market economy also aspired to go beyond the village (Jodhka, 2014). The agrarian economy could not satisfy their aspirations for social and cultural mobility. The surplus they generated from agriculture went into education, urban trade and other non-agricultural activities.

During past 10 years, the transformation in the economy of 3 eastern states took different forms as compared to national average (Table 7). Bihar has been traditionally agricultural based economy. But share of agriculture in state's economy has declined to one-fifth in 2013-14, however, still 70 per cent of the workforce are engaged in agriculture and allied sector. Thus, the difference between these two remain constant (around 48-50 percent). The share of agriculture and allied sector in the GSDP of Jharkhand and Orissa both are about 13 per cent in 2013-14, but the trend has been opposite. In Jharkhand, the sector has grown faster than rest of the sector, therefore its share has improved slightly, while workforce dependent on it has come down to about 58.81 per cent. On the other hand, in Orissa, share of agriculture sector came down but the workforce dependence on it has not shifted significantly. In comparison to this trend, the difference between share of

Table 7: Share of agriculture and allied sector in state gross domestic product and employment during 2004-09 to 2013-14

	(at 2004-05 prices)									
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
<i>Bihar</i>										
Per capita NSDP	7914	8223	9967	11051	13728	15457	19187	22913	28774	33459
Agri-GSDP	20673	19299	24578	22769	25435	22076	26367	29448	31893	30890
Total GSDP	77781	77908	90095	95274	106857	113248	130173	142646	164121	178597
Share of Agriculture in GSDP, %	26.58	24.77	27.28	23.90	23.80	19.49	20.26	20.64	19.43	17.30
Employment share of farm-sector, %	76.60	75.24	73.91	72.60	71.32	70.06	68.82	67.60	66.40	65.23
Share of agriculture in economy minus share of employment, %	-50.02	-50.47	-46.63	-48.71	-47.52	-50.56	-48.56	-46.96	-46.97	-47.93
<i>Jharkhand</i>										
Per capita NSDP	18510	18326	19789	24789	25046	28223	34721	38760	44045	50125
Agri-GSDP	6795	7023	7995	8462	10198	9251	9722	12335	13432	14626
Total GSDP	59758	57848	59226	71377	70129	77240	89491	97896	105597	114392
Share of Agriculture in GSDP, %	11.37	12.14	13.50	11.86	14.54	11.98	10.86	12.60	12.72	12.79
Employment share of farm-sector, %	67.30	66.30	65.31	64.34	63.39	62.44	61.51	60.60	59.70	58.81
Share of agriculture in economy minus share of employment, %	-55.93	-54.16	-51.81	-52.49	-48.84	-50.47	-50.65	-48.00	-46.98	-46.03
<i>Orissa</i>										
Per capita NSDP	17650	18846	22237	27735	31416	33029	39537	41876	49241	54241
Agri-GSDP	14604	15110	15350	16169	16450	18009	18423	17370	19580	18889
Total GSDP	77729	82145	92701	102846	110812	115851	125131	129864	140367	148226
Share of Agriculture in GSDP, %	18.79	18.39	16.56	15.72	14.84	15.54	14.72	13.38	13.95	12.74
Employment share of farm-sector, %	67.20	66.48	65.76	65.05	64.35	63.66	62.98	62.30	61.63	60.97
Share of agriculture in economy minus share of employment, %	-48.41	-48.08	-49.20	-49.33	-49.51	-48.12	-48.25	-48.92	-47.68	-48.22
<i>All India</i>										
Per capita NSDP	24143	27131	31206	35825	40775	46249	54021	61855	67839	74920
Agri-GSDP	476324	502996	523745	556956	555442	557715	610905	643543	649424	681412
Total GSDP	2971464	3253073	3564364	3896636	4158676	4516071	4918533	5247530	5482111	5741791
Share of Agriculture in GSDP, %	16.03	15.46	14.69	14.29	13.36	12.35	12.42	12.26	11.85	11.87
Employment share of farm-sector, %	70.80	69.80	68.82	67.85	66.89	65.95	65.02	64.10	63.20	62.30
Share of agriculture in economy minus share of employment, %	-54.77	-54.34	-54.12	-53.55	-53.53	-53.60	-52.60	-51.84	-51.35	-50.44

agriculture in India's economy and workforce's dependence on it has declined by 5 percentage point, exhibiting healthy sign.

Rural Employment Diversification

According to the 2004 NCAER-University of Maryland India Human Development

Survey, nearly one-half (48 percent) of the income of the average rural household comes from non-farm earnings (Dubey, 2008). This is true also of farming households for whom the share of their income from non-agricultural activities (46 percent) matches the contribution

of agricultural incomes (Cai *et al.*, 2008). The policymakers in developing countries increasingly recognise that diversification in the structure of rural employment holds the key to reducing unemployment and poverty. This is associated with a shift of the workforce from the farm sector to nonfarm sectors of the economy. Many economists have focused on structural shifts in employment patterns. Bhalla and Hazell (2003) showed that economies experience shifts in their structure of employment. A major reason for this is that the agricultural sector in many countries is in trouble from declining employment elasticity, falling productivity, and shrinking returns (Singh *et al.*, 2007).

Even in the selected eastern states, the share of the cultivators in total active population employed in agriculture is declining. Still agriculture plays quite substantial role in employment, more than three-fourth in rural areas. This complicates the already existing precarious situation as agriculture is providing much lower incomes and wages than other sectors, whereby the poorest households in the region are predominantly employed in agriculture. Even labour farm productivity in these states are much lower than that of in other states (Reddy *et al.*, 2014 and Basu and Nandi, 2014).

From Table 8, it can be observed that in most recent years, more employment opportunities emerged in non-farm sector particularly in Bihar and Jharkhand, while in Orissa, it has slowed down.

Table 8: Change in percent share of non-farm employment in rural eastern states

State	1993-94 to 2004-05	2004-05 to 2011-12
Bihar	8.05	11.77
Jharkhand	9.12	13.20
Orissa	11.98	8.54
All India	5.73	13.35

At all India level also, the percent change in share of non-farm-employment during 2004-05 to 2011-12 has been faster than that in 1993-94 to 2004-05.

In eastern states, most of the increase in workforce over past one decade has come from rural area. From Table 9, it can be inferred that the increase in labour force were mainly absorbed as agricultural labourers and remaining as daily wage labourers, construction and other service sectors.

Table 9: State-wise change in number of workers in in the selected states during 2001 and 2011

Particulars	('000)			
	Bihar	Jharkhand	Odisha	All India
Increase in total number of workforce	6750.4 (83.06)	2989.2 (73.85)	3265.1 (77.08)	79508.6 (48.60)
Change in total number of rural workforce				
Male	1022.6	498.8	694.5	8336.6
Female	965.4	286.3	292.8	5492.8
Change in rural agricultural workforce				
Male	-711.8	-134.8	8	-3636.8
Female	-285.6	28.7	-175.5	-6114.5
Male	3640.8	818	865.4	23224
Female	1045.5	710.6	831.6	11339.2

Source: Census of India, 2001; 2011.

Figures within parentheses indicate percent share of rural labour force in increase in total labours in 2001-2011

Interestingly, the number of cultivators has come down significantly in all 3 states, however with different patterns. In Jharkhand, male cultivators have declined, while in Orissa, number of female cultivators has come down drastically. Second important trend is even among agricultural labours, the number of male labours have increased more than the female labours. It indicates that recent trends of reverse migration taken place in Bihar has added to agricultural labour force pool. But more disturbing picture is highlighted in Table 10, which states that over the years, use of human labour has decreased in cultivation of all the crops in 3 states. In other words, rise in agricultural labour on one hand and drop in per hectare labour use in crop cultivation indicates the underemployment of agricultural labour in rural area of eastern states.

Farm Diversification

The eastern states supports more than 85 per cent of small and marginal farmers, who

Table 10: Declining labour use in crop production in selected states

	(hrha ⁻¹)						
Crops	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2011-12
<i>Bihar</i>							
Paddy	874.87	831.32	839.59	770.62	796.51	767.68	797.03
Wheat	404.06	399.93	384.73	367.37	438.67	410.68	388.73
Maize	660.84	670.49	661.47	686.32	578.24	562.8	570.46
P.Pea		709.74	534.84	399.81	451.59	385.21	167.33
Gram	213.74	286.42	273.24	210.8	356.6	398.8	240.61
Lentil	302.89	321.13		268.14	284.86	321.91	257.3
Potato		1198.3	1111.84	1037.44	1043.7	1157.73	711.66
R/Mustard					519.82	486.11	491.67
<i>Odisha</i>							
Paddy	1088.43	1044.3	1057.85	1046.27	1059.53	1061.59	
P.Pea		488.26		514.88	443.74	392.01	470.62
Moong	349.15	352.67	333.4	362.48	336.44	346.55	340.86
Nigerseed	271.14	261.68	262.67	289.21	295.25	299.8	428.02
Sesumm	410.12	451.38	528.46	533.69	467.28	440.75	398.54
Bloackgram	321.78	374.3	380.05	392.79	358.79	363	353.89
Jute	1291.51		1369.15	1570.88	1594.82	1596.78	1558.06
Cotton					1327.32	1393.8	1346.25
Groundnut					957.56	1073.67	946.39
<i>Jharkhand</i>							
Paddy	818.88	805.46	783.64	788.75	755.97	748.72	778.92
Wheat	506.6	405.05	422.04	452.18	460.08	400.27	303.8
Maize		573.82	614.72	795.22			
Gram	287.16	305.23	349.59	345.95	274.62	262.32	
Lentil		391.8		368.9	290.67	283.18	
Potato	1291.98	1100.12		957.07			

Source: Directorate of Economics & Statistics, Ministry of Agriculture, Government of India, New Delhi

remain attached to their tiny piece of lands, as it is the only asset they own. Besides, livestock have been an integral and important component of India's agricultural economy. It has a synergistic relationship with crop production, and in turn provide draught power and manure for cropping activities. They also assume the role of a financial institution—a living bank with offspring as interest—and are an insurance against income shocks (Birtal and Negi, 2012).

From Table 10, it is clear that sectoral diversification within agriculture and allied sectors is similar in eastern states as compared to any other developed states, as diversification index (Simpson Index) varied in very narrow range of 0.7 in Punjab to 0.88 in Gujarat. It also didn't change much in the span of last 6-7 years across the states. It indicates

that the eastern states which are dominated by marginal farmers have limited scope for diversifying their crop portfolio. Although, non-farm diversification is taking place, for instance, livestock sector in Bihar as well as in Orissa and fisheries in Jharkhand has provided good support to the state economy. Growth in value of output from agriculture, fruits & vegetables, livestock and fisheries has been positive and high, particularly in Jharkhand and Orissa states. Jharkhand state has witnessed phenomenal growth in fruits and vegetables production, livestock and fisheries, though with high variability. Although, the growth in Bihar has been relatively slow but these sectors are growing consistently. Moreover, during 2004-2010, the growth in all the agriculture and allied sectors have been very good in all the major states.

Table 11: Farm sector diversification and growth of different sectors in eastern states versus their major states

State	Diversification index (Simpson)		Growth rates of value of output from different sources, % (2004- 2010)			
	2004-05	2010-11	Agriculture	Fruits and vegetables	Livestock	Fisheries
Bihar	0.788	0.773	3.5 (8.60)	2.5 (6.50)	4.6 (9.70)	2.2 (5.70)
Jharkhand	0.794	0.794	5.4 (15.80)	4.6 (18.40)	4.5 (12.40)	17.9 (33.60)
Orissa	0.808	0.814	3.3 (7.70)	4.1 (10.00)	10.2 (21.10)	4.6 (10.10)
All India			3.2 (7.30)	5.3 (11.20)	4.8 (10.20)	4.5 (9.50)
Andhra Pradesh	0.849	0.836	5.1 (13.50)	9.8 (18.80)	6.2 (13.40)	6.5 (14.00)
Gujarat	0.882	0.87	3.2 (12.50)	8 (17.10)	6.3 (13.10)	3.1 (10.10)
Haryana	0.775	0.758	2.7 (7.60)	5.2 (11.80)	6.1 (12.70)	14.7 (28.50)
Maharashtra	0.868	0.888	4.3 (13.30)	0 (5.70)	4.4 (9.40)	0.6 (5.80)
Punjab	0.701	0.703	2 (5.90)	10.9 (23.70)	1.7 (3.70)	3.1 (8.40)
Tamil Nadu	0.842	0.816	2.7 (6.80)	3.8 (9.90)	8.3 (18.90)	4.8 (13.20)

**at 2004-05 prices

Figures within parentheses are Coefficient of Variation during 2004-2010

Note: VOP from Agriculture excludes livestock, fisheries and forestry

Table 12 provides the contribution of different sectors in the agricultural sector's value of output during 2004-2010. There is a wide interstate variation in the contribution of livestock to the gross value of output from agricultural sector. The livestock sector generated 50 to 65 percent of the agricultural

Table 12: Value of output from agriculture and allied sector in eastern states versus other major states for the period 2004-2011 (at 2004-05 prices)

State	(' 000' crores)			
	Agri	F&V	Livestock	Fisheries
Bihar	17.73	7.19	12.21	1.33
Jharkhand	5.92	2.85	2.85	0.28
Odisha	17.47	8.16	4.42	1.50
Punjab	28.21	2.60	13.95	0.35
Haryana	20.05	1.99	9.53	0.22
Gujarat	34.12	6.25	12.36	2.30
Maharashtra	56.71	16.35	15.23	1.75
Andhra Pradesh	44.64	11.29	24.50	9.03
Tamil Nadu	22.83	8.07	11.55	3.00

F&V: Fruits and vegetables

output in Bihar and Jharkhand state. Among states that had already a high share of output from livestock (greater than the all-India average), like Bihar and Punjab experienced a rapid increase. Among states that had a low share of output from livestock in the early 1990s, like Orissa, Andhra Pradesh, Gujarat, and Karnataka realised a moderate to significant improvement. This indicates the importance of livestock in generating sustainable agricultural growth. Birthal and Taneja (2006) reported reduction in rural poverty being more responsive to growth in the livestock sector than growth in the crop sector. Evidence from other developing countries also suggests that livestock can serve as an important pathway to poverty reduction. From a study of poultry producers in south Asia, Dolberg (2003) concluded that animal husbandry can be an entry point for reducing poverty among landless and near landless households.

More surprising, the net sown area as well as gross cropped area is declining very fast in 3 states in recent years due to exponential growth in diversion of land from farm to non-farm sector, which has never been observed before for any other states (Table 11). This is cause of concern as large proportion of the rural population in the region still depend on agriculture directly or indirectly. Within crops, the crop productivity of major crops in eastern states have not reached to the level of that in other progressive states like Punjab, Haryana, Andhra Pradesh and Tamil Nadu. Even then, the region started showing fatigue, as the yield growth in recent years for rice, wheat, maize, pulses, etc. became very slow or in some cases negative. Area under paddy, maize, gram and rapeseed-mustard has squeezed in Bihar during 2001-2009, while in Jharkhand and Orissa, area under paddy has seized to expand. On the yield front, paddy yield has stagnated in Bihar and, yields of maize, gram, rapeseed-mustard as well as vegetables in Jharkhand started declining. Orissa state has shown good resilience in recent years as the crop yield has been improving in the range of 2-5 per cent annually (Table 13).

It is believed that for transformation of agriculture and rural area *per se*, there is a need for growth in non-agriculture sector also (Visaria *et al.*, 1994 and Acharya and Mitra, 2000). In other words, the solution for low income region lies in growth of non-agriculture sector in order to absorb surplus labour in

agriculture. Vaidyanathan (1986) found a positive association between the unemployment rate and the incidence level of rural non-agricultural employment in states. He argues that in a situation where the labour absorptive capacity of agriculture becomes limited and the urban industrial sector is not able to accommodate the ever-growing labour force, the non-farm sector tend to act as a *sponge* for the surplus labour. The rural non-farm sector thus acts like a residual sector in which rural workers concentrate on account of their distress conditions. This is popularly known as the push phenomenon or distress hypothesis which was subsequently, supported by several scholars. The above discussion suggests that pull as well as push-related factors promote rural non-farm employment (RNFE) growth. These labour needs to be trained for more skilful work, as more than 30 per cent of rural population in these states are still illiterate. RNFE is especially dynamic with farm households diversifying into the sector to increase income (Binswanger-Mkhize, 2013). Moreover, the rural transformation should help men and women build assets and develop their skills so that they can access new opportunities for income generation and employment. Though, supportive policies, robust institutions and reliable services (micro-credit, veterinary and crop advice, markets, etc.) are essential for inclusive growth and to increase people's participation in development.

Table 13: Crops yield growth in selected states during 2001 -2011

Crop	Area growth				Yield growth			
	-ve	0-2	2-5	>5	-ve	0-2	2-5	>5
Paddy	BH, JH, OR				BH		JH, OR	
Wheat		BH, OR		JH	JH	BH	OR	
Maize	BH		JH, OR		JH		BH	JH, OR
Gram	BH		OR	JH	JH		BH, OR	
Rapeseed-Mustard	BH	OR		JH	JH		BH, OR	
Potato	OR	BH		JH	BH, JH			
*Vege-tables				BH, JH, OR	JH, OR		BH, OR	

Note: For Bihar (BH) and Jharkhand (JH), 2001 to 2009 taken while for Orissa (OR), 2001-2010 was considered

*For vegetables, data are available for 2005-2012 in case of Bihar and 2010-2013 for Jharkhand and Orissa

Gross cropped area in Bihar (-0.6 %), Jharkhand (-4.05 %) and Odisha (-4.96 %) was declining.

Some Evidences from Village Dynamics Studies

The present study of Village Dynamics Studies in South Asia (VDSA) piloted by International Crops Research Institute for Semi-Arid Tropics (ICRISAT) expanded to eastern India in the year 2010. Two districts in 3 eastern states each- Bihar, Jharkhand and Orissa, were selected and 2 villages from each selected district were considered for observation and collection of longitudinal data from selected 40 households in each village. A resident investigator posted in the village collects information on continuous basis. Table 14 presents the average operational holding with different category of households alongwith the number of plots. The households with less than 0.5 acre land were

considered under landless class. It appears that within two years, the operational holding of landless and small holding class has increased in all 3 states, which were taken on lease from medium and large farmers. However, the fragmentation of holding restricts the landless and small holders to get the benefit of economy of scale in field operations.

One of the key findings emerged from 3 years observation that there are not a single household who completely depends on crop production only for their livelihood. They diversify their income sources into livestock, wage income, small business (shop), service provider or salaried job in nearby market. Income from all the sources increased during last 3 years, however the absolute income as well as increase in income has been slowest in

Table 14: Average operational holding in VDSA villages in Eastern India

(Acre)

State	2010				2012			
	Landless farm	Small farm	Medium farm	Large farm	Landless farm	Small farm	Medium farm	Large farm
Bihar	0.13 (1.00)	1.04 (5.00)	1.94 (7.00)	6.3 (11.00)	0.28 (2.00)	1.22 (6.00)	1.67 (7.00)	5.09 (11.00)
Jharkhand	0.38 (2.00)	0.89 (4.00)	1.65 (4.00)	5.51 (5.00)	0.48 (2.00)	1.26 (4.00)	1.84 (5.00)	4.03 (6.00)
Odisha	0.73 (1.00)	1.36 (3.00)	2.98 (4.00)	5.98 (5.00)	1.77 (2.00)	1.41 (3.00)	2.87 (4.00)	5.25 (5.00)

Figures within parentheses indicate average number of plots under respective category

Table 15: Averages annual income from all sources in VDSA villages in Eastern India

(` household⁻¹)

State	Particulars	2010	2011	2012
Bihar	Crop production	31823.70	43141.70	51535.74
	Livestock	10565.40	11203.92	9709.95
	Farm labour	10006.88	14420.38	16628.40
	NF labour and business	41925.50	54927.24	67838.77
Jharkhand	Salaried	145243.82	176576.94	198742.86
	Crop production	3587.30	13023.49	16005.37
	Livestock	2914.36	1437.53	1256.42
	Farm labour	2309.72	5087.62	5240.17
	NF labour and business	33285.31	46563.87	63597.50
Odisha	Salaried	90900.00	109717.78	141027.59
	Crop production	9373.33	15442.13	41816.16
	Livestock	4885.34	5048.34	4399.41
	Farm labour	11272.41	13610.08	18541.91
	NF labour and business	26892.37	35102.78	43119.09
	Salaried	65940.11	106019.42	99687.10

Wages income including salaried job, farm and non-farm Income & others (Temporarily wage income)

crop as well as livestock sector. Even income from farm wage also is very low and slow. Instead, many household members are joining salaried job or doing business in daily commutable market (Table 15). The trend is a clear evidence of discernible expansion of non-farm employment in the village economy.

The perusal of Table 16 also substantiate the declining interest of farmers of Bihar in crop production as cropping intensity has come down significantly in the recent year, while same has increased in Jharkhand state. Though, in Orissa, there is no significant difference.

Rural transformation taking place in rural area of eastern India is more visible in Table 17, which highlights the shift in occupational preferences by the rural population. It may be observed that in Bihar, about 10 per cent of farmers, who were earning their livelihood from farming have left farming by the year

Table 16: Cropping intensity in VDSA Eastern India

Farm category	(Percent)		
	Bihar	Jharkhand	Orissa
<i>2010</i>			
Landless labourers	200	130	139
Small farmers	229	115	134
Medium farmers	225	107	134
Large farmers	213	105	124
<i>2011</i>			
Landless labourers	165	143	119
Small farmers	189	160	124
Medium farmers	183	152	129
Large farmers	178	151	116
<i>2012</i>			
Landless labourers	153	196	110
Small farmers	144	199	110
Medium farmers	141	198	104
Large farmers	143	195	102

2012. Similar is the case with farm labours, who are preferring to work in non-farm activity.

Table 17: State-wise occupational mobility matrix, 2010 versus 2012

Occupation	100 % (2010)	Farming	Farm labor	Business	Salaried job	Caste occupation	Non-farm labor	Livestock	Other NF*
<i>Bihar: 2010 versus 2012</i>									
Farming	109	90.8	0	0	2.8	0.9	0.9	0	4.6
Farm labor	10	0	70	0	0	0	30	0	0
Business	12	0	0	83.3	8.3	0	0	0	8.3
Salaried job	68	4.4	0	4.4	83.8	1.5	2.9	0	2.9
Caste occupation	3	0	0	0	0	100	0	0	0
Non-farm labor	80	1.3	2.5	6.3	6.3	3.8	80	0	3.8
Livestock	5	0	0	0	20	20	0	60	0
Other NF	10	20	0	0	30	10	10	0	30
<i>Jharkhand: 2010 versus 2012</i>									
Farming	152	79.6	1.3	0	2	0.7	15.8	0	0.7
Farm labor	12	8.3	33.3	0	0	0	58.3	0	0
Business	7	14.3	0	71.4	14.3	0	0	0	0
Salaried job	20	5	0	0	80	0	10	0	5
Caste occupation	5	0	0	0	0	100	0	0	0
Non-farm labor	51	5.9	0	2	3.9	0	88.2	0	0
Livestock	1	0	0	0	0	0	0	100	0
Other NF	1	0	0	0	0	0	100	0	0
<i>Odisha: 2010 versus 2012</i>									
Farming	120	81.7	5.8	1.7	1.7	1.7	5	0	2.5
Farm labor	48	14.6	54.2	10.4	2.1	0	12.5	2.1	4.2
Business	17	5.9	0	88.2	0	0	5.9	0	0
Salaried job	34	11.8	0	5.9	76.5	0	2.9	0	2.9
Caste occupation #	2	50	0	0	0	50	0	0	0
Non-farm labor	34	5.9	14.7	0	5.9	0	73.5	0	0
Livestock	4	25	0	25	0	0	0	50	0
Other NF	14	0	0	0	14.3	0	14.3	7.1	64.3

*Other NF - Other Non- Farm work (Private contract job, Retired, Searching job "unemployed", Daily wages job)

However, the trend is not the same in other two states. In Jharkhand, on one hand, some of the farmers have shifted their main occupation away from farming, while new generation of farmers are turning to this sector from erstwhile small business, farm labour and non-farm labour category. Similar trend is true in Orissa, where significant number of rural folks who were earlier engaged in different kinds of non-farm activities are getting interested in farming.

Different government programmes launched by central as well as state governments play important role in rural transformation. There are several programmes which are meant for either crop/livestock productivity improvement, asset creation or social protection. However, all are not widely spread with similar enthusiasm everywhere. In the study area of eastern India, it may be noted that there are only few programmes particularly related to productivity improvement, which are implemented in all the villages. Interestingly, programmes like KCC, NFSM, NHM, RKVY, SHG, Livestock insurance, etc. have completely disappeared in all the villages of Bihar and Jharkhand (Table 18). Orissa state has been quite aggressive in expanding the reach of these programmes very well.

Key Issues to Catalyse Rural Transformation

Mellor (1978) argues that rural diversification in India is the outcome of technology-induced growth in the agricultural

sector. On the production side, a growing agriculture requires inputs of fertilizer, seeds, herbicides, pumps, sprayers, equipment and repair services either produced or distributed by non-farm enterprises. Increased agricultural output in a forward direction also stimulates milling and processing activities. The consumption linkage in agriculture arises when growing farm income boosts demand for basic consumer goods. This linkage increases over time as rising per capita income (PCI) induces diversification of consumption spending into non-foods. Improved access to physical or produced capital (basic infrastructure and the production assets and means which enable people to pursue their livelihoods) is an essential element to provide meaningful employment for rural people engaged in farming and other activities. In addition to physical capital, the financial resources available to people (including savings, credit, remittances and pensions) provide them with different livelihood options (Carney, 1998). Therefore, to catalyse the rural transformation in rural eastern region, where still large population are engaged in farming, following strategies may be considered:

Agriculture-led Growth

The large population in eastern states depend on agriculture, therefore rural transformation in these states require an agriculture-led growth, which includes:

- a. Productivity improvements, through

Table 18: Government sponsored social safety net and development programmes in selected states

Government Development Program	2010			2012		
	Bihar	Jharkhand	Odisha	Bihar	Jharkhand	Odisha
Crop/ Livestock Improvement						
Kisan Credit Card Scheme (KCC)	***	**	*			*
National Food Security Mission (NFSM)	*	*	*		*	****
National Horticulture Mission	*				*	***
RashtriyaKrishiVikashYojana (RKVY)	*			*		****
Self-help group (SHGs)/Farmers club	*	*	***			
Subsidy on farm well/Farm ponds			*		*	***
Subsidy on purchase of agricultural implements/machinery	*			***		
Livestock insurance	*		*			

*Number of * indicate number of villages covered under the scheme*

- appropriate R&D efforts, transfer of modern technologies and capacity building of farmers. Higher crop productivity and livestock productivity is a key factor in rural poverty reduction.
- b. Management of water economy, including water harvesting, increasing water productivity and bringing larger area under irrigation. It would help in shifting traditional crop production to more high value crops production.
 - c. Development of market infrastructure at district-level
 - d. Promotion of agro-based industries in rural areas according to the comparative advantage
 - e. Climate change preparedness

Building up rural infrastructure, with special focus on energy, roads and financial services.

Improving social infrastructure, primary health care facilities and schooling in rural areas and, finally

Strengthening wide scale usage of ICTs.

CONCLUSIONS

Agriculture and allied sector (livestock, fisheries and poultry) is strategically important for sustainable and inclusive development of rural eastern region. It is a major employer and a means of reducing poverty and ensuring food security. In coming years, agriculture needs to change profoundly in the region to meet increasing demands while facing more competitive and volatile markets, and the effects of climate change. Small family farms while highly heterogeneous, growing demand for high-quality nutritious food and other agricultural goods would create opportunities for them to become viable businesses. However, many of the factors underlying constrain the entrepreneurship of smallholder farmers. Due to unviable land holding and low profitability of farming, small farmers in eastern states are entering into labour market to supplement their livelihood. Therefore, small farming has to be made viable through massive public investment in basic and social infrastructure and, establishing new

institutions like farmers groups, so as to reduce the cost of cultivation and contributes to more marketed surplus. Although the production of high-value agriculture is labour-intensive and thus more suitable for smallholders, they face a number of constraints-high perishability, fragmented markets, high price volatility, low volumes of marketable surplus and remote location of operation with poorly developed infrastructure. As a result, smallholders face high transaction costs and risks in production and marketing of such commodities. The evidence suggests that the support should be oriented towards enhancing agricultural productivity, effective delivery of public goods and associated services such as R&D, irrigation, and other infrastructure. The next biggest challenge in the region (Bihar, Jharkhand and Orissa) is educating and skilling large and growing young population. In this context, significant upgradation of rural education, health care and infrastructure are vital. Further improving the effective scale-neutral technological intervention providing accurate information of market and monsoon will help everyone better return in the long run. Public-private partnership will play an important role in realizing strategies that promote resilience, such as by providing incentives for investments that reduce vulnerability to shocks; or that improve risk management capacity (income insurance, social protection and education); fostering well-functioning markets; and ensuring good governance.

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Annexure I

Monthly per capita expenditure by different income categories in rural area of selected states

(C)

Percent	Bihar		Jharkhand		Odisha		AP		Tamil Nadu		Punjab		Maharashtra		Gujarat	
	2004	2011	2004	2011	2004	2011	2004	2011	2004	2011	2004	2011	2004	2011	2004	2011
< 5	215	493	207	483	193	473	190	475	202	518	212	541	199	448	204	493
5-10	255	594	257	601	253	604	256	601	255	601	249	564	254	596	255	600
10-20	296	694	296	697	296	698	298	699	298	707	298	699	294	714	299	702
20-30	341	807	340	812	342	804	342	818	343	812	346	837	342	812	344	817
30-40	386	908	386	904	385	902	385	913	387	910	386	899	385	915	386	914
40-50	432	1015	428	1017	428	1014	432	1011	430	1020	430	1021	431	1016	430	1024
50-60	482	1138	481	1141	483	1141	482	1148	482	1140	483	1154	481	1140	484	1142
60-70	543	1292	544	1280	544	1296	544	1299	544	1296	545	1290	545	1291	542	1292
70-80	626	1478	629	1482	628	1506	628	1504	632	1496	629	1508	629	1495	629	1499
80-90	764	1801	764	1784	766	1821	770	1814	771	1823	782	1826	771	1815	775	1835
90-95	979	2324	996	2272	1010	2317	1008	2327	998	2335	1005	2334	1003	2340	991	2318
95-100	1534	3024	1767	3642	1708	3456	1937	3676	2358	3919	1767	3943	1872	4113	1646	3772

Source: Authors own estimation
2004: 2004-05 and 2011: 2011-12

Annexure II

Income distribution in rural area of selected states in 2004-05 and 2011-12

