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Diversification of Rural Economy

REGIONAL TRENDS AND PATTERNS OF DIVERSIFICATION OF THE RURAL ECONOMY IN INDIA

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The diversification of rural economy is often suggested as one of the means for rapid economic development in India. Having achieved some success in raising crop production through various technological and institutional changes, the country is now said to be poised for white and blue revolutions involving substantial increases in livestock and fish output. In view of the growing pressure of population and the limited scope of increasing additional income through crop production beyond a point, such a diversification is considered essential not only for the liberation of the rural masses from the squalor of poverty, but also for meeting the demands for milk and milk products, meat, fish, eggs, etc., which generally show rising trends with increasing levels of per capita income in the economy. Since the late sixties (under special development programmes), various State Governments have spent huge sums of money on animal husbandry, poultry, forestry and logging and fishing, particularly with a view to improving the economic condition of the relatively weaker section of the rural population. However, it is important to examine whether all such past measures have brought about any significant changes in the income and occupational structures of the rural economy of various regions. The specific objectives of this study were: (i) to find out the nature and extent of variations in the patterns of rural diversification over time in various regions; (ii) to compute and compare the recent trends and variability in the net output of crops, livestock, forestry and logging and fishing sub-sectors of the rural economy; (iii) to determine the relationship between occupational structure and patterns of rural poverty; and (iv) to examine the long-term prospects of rural diversification in various regions of the country.

METHODOLOGY

For this study, Statewise data of net domestic product at factor cost by sub-sectors of the rural economy were collected from various publications of the Central Statistical Organisation (CSO), Government of India, New Delhi, although the aggregate data of agricultural output thus collected, were appropriately adjusted and disaggregated by the author in order to make them meaningful for inter-regional and sub-sectoral comparisons. (The detailed metholdology adopted for the adjustment of data could not be presented here due to lack of space.) Besides, with a view to examining the occupational and income distribution patterns of the rural households, the results of the 32nd Round (1977-78) of the National Sample Survey (NSS) were used. The study was confined to 19 regions of the country for which adequate up-to-date information was available.

It was not intended in this paper to study any diversification within agriculture such as shift from food to non-food crops, traditional to modern varieties and so on. Rather the term 'diversification of rural economy' was used broadly to indicate the extent of departure of the rural households from traditional crop cultivation to animal husbandry, poultry, forestry, fishing, etc. The diversification was measured mainly by working out the relative percentage shares of various non-crop activities in the aggregate net domestic product of the rural sector, although the distribution of rural households between agricultural and non-agricultural occupations also were used as a broad indicator of diversification.

While tabular analysis was used for a greater part of the study, the trends in the output of crop, livestock, forestry and logging and fishing sub-sectors were worked out by estimating

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the equation: $\log Y = \log a + T \log b + u$, where $\log Y$ is the log of the dependent variable, viz., output; T is the independent time variable and u is the random error. In addition, the variability in the output of various sub-sectors was studied by calculating the coefficient of variation (per cent):

$$(CV = \frac{\text{Standard Deviation}}{\text{Mear}} X 100).$$

RESULTS AND DISCUSSION

Temporal and Spatial Variations in the Patterns of Diversification

It may be seen from Table I that crop production accounted for the lion's share in the net aggregate output of the rural sector in all the regions of the country. During 1970-73 (triennium) to 1979-82 (triennium), however, the percentage share of crop production in the aggregate output of the rural sector marginally declined in most of the regions excepting Haryana, Jammu & Kashmir, Maharashtra and Tripura where the relative share of crop production had shown some increasing trends. In all the regions under study, animal husbandry and poultry were found to be only next to crop production in the order of

TABLE I. CHANGES IN THE PERCENTAGE SHARES OF VARIOUS SUB-SECTORS IN THE NET AGGREGATE OUTPUT OF THE RURAL SECTOR DURING 1970-73 TO 1979-82

State	Cro pro duct)-	husb 8	imal andry and ultry		ry and ging	Fishing	
	1970-73	1979-82	1970-73	1979-82	1970-73	1979-82	1970-73	1979-82
Andhra Pradesh	90.6	86.8	6.3	10.5	1.0	0.6	2.1	2.1
Assam	86.9	85.8	7.2	8.7	1.8	1.5	4.1	4.0
Bihar	87.0	83.7	10.1	12.5	1.7	2.1	1.2	1.7
Gujarat	86.0	83.6	12.0	14.3	1.1	0.7	0.9	1.4
Haryana	80.2	81.1	19.4	18.3	0.4	0.4	0.0	0.2
Himachal Pradesh	69.6	66.5	16.8	21.8	13.5	11.5	0.1	0.2
Jammu & Kashmir	74.5	75.7	16.6	14.4	8.1	9.1	0.8	0.8
Karnataka	91.3	87.8	4.6	9.6	3.2	1.7	0.9	0.9
Kerala	88.2	79.5	5.7	15.6	1.7	1.6	4.4	3.3
Madhya Pradesh	83.4	75.5	9.5	16.7	6.9	7.5	0.2	0.3
Maharashtra	83.5	89.3	10.8	6.9	3.9	2.2	1.8	1.6
Manipur	87.3	87.0	8.7	6.9	1.7	1.9	2.3	4.2
Orissa	91.7	90.2	5.0	6.2	2.0	1.7	1.3	1.9
Punjab	83.9	82.4	15.7	17.0	0.3	0.5	0.1	0.1
Rajasthan	78.5	73.4	20.9	25.9	0.4	0.3	0.2	0.4
Tamil Nadu	91.2	79.5	6.0	16.9	0.6	0.5	2.2	3.1
Tripura	89.8	91.7	4.0	3.5	3.2	3.1	3.0	1.7
Uttar Pradesh	84.3	83.0	12.7	14.8	2.7	1.9	0.3	0.3
West Bengal	89.6	87.2	5.4	7.8	0.6	0.4	4.4	4.6
All-India	86.3	82.5	9.8	14.0	2.5	1.9	1.4	1.6

Source: Based on data collected from the Estimates of State Domestic Product, CSO, Government of India, New Delhi, 1984.

importance, although the percentage share of animal husbandry and poultry in the net aggregate output of the rural sector varied widely between regions. During the triennium ending 1981-82, it ranged between 3.5 per cent in Tripura and 25.9 per cent in Rajasthan. As compared to period I (1970-73), the percentage share of animal husbandry and poultry in period II (1979-82) increased in 16 out of the 19 regions studied. The States of Maharashtra, Manipur, Tripura and Jammu & Kashmir were exceptions to this trend due mainly to their relatively high growth rates of crop output (Table II). The share of forestry and logging was found to be less than 5 per cent in all the regions excepting Himachal Pradesh, Jammu & Kashmir and Madhya Pradesh where forestry and logging contributed about 11.5 per cent, 9.1 per cent and 7.5 per cent respectively to the aggregate output. The relative importance of fishing also seemed to vary from region to region. The share of fishing in the net aggregate output of the rural sector ranged from 0.1 per cent in Punjab to 4.6 per cent in West Bengal. The relative share of fishing increased over time in ten out of the 19 regions.

Thus, judged by the sub-sectoral patterns of income distribution, various regions of the country seemed to form five distinct patterns of rural diversification. First, in States like Assam, Manipur, Tripura, West Bengal, Orissa, Karnataka and Maharashtra, crop production accounted for more than 80 per cent of the net aggregate output of the rural sector, followed by animal husbandry and poultry, fishing, and forestry and logging respectively, contributing less than ten per cent each. Secondly, in the States of Punjab, Haryana, uttar Pradesh, Bihar, Andhra Pradesh and Gujarat, although the relative shares of crop production, forestry and logging and fishing remained more or less similar to those of the first group of States, the share of animal husbandry and poultry was found to be above ten per cent, ranging from 10.5 per cent in Andhra Pradesh to 18.3 per cent in Haryana. Thirdly, in the States of Kerala, Tamil Nadu, Jammu & Kashmir and Madhya Pradesh, the relative share of crop output ranged between 70 per cent and 80 per cent and that of animal husbandry and poultry between ten per cent and 20 per cent. Fourthly, in Himachal Pradesh, the importance of animal husbandry and poultry as well as of forestry and logging was found to be relatively greater. The contribution of these two sub-sectors was as high as 21.8 per cent for animal husbandry and poultry and 11.5 per cent for forestry and logging. Finally, Rajasthan also formed an independent pattern where about 73.4 per cent of the net rural output originated from crop production, followed by animal husbandry and poultry (25.9 per cent). The contribution of both foretry and logging and fishing in the State was found to be less than one per cent.

Trends and Variability in the Net Output of Various Sub-Sectors

Table II shows that during 1970-71 to 1981-82, the growth rate of net output of the crop sub-sector ranged between -2.1 per cent in Tamil Nadu to 6.7 per cent in Maharashtra. The growth rate of crop output was negative in as many as six out of the 19 States studied, including Bihar, Karnataka, Kerala, Madhya Pradesh, Rajasthan and Tamil Nadu. While the growth rates of livestock output were positive in all the regions, those of forestry and logging and fishing had shown mixed trends. The growth rate of output of forestry and logging was found to be highest in Punjab (8.4 per cent), followed by Manipur (6.7 per cent), Jammu & Kashmir (4.9 per cent), Tripura (4.0 per cent), Haryana (3.3 per cent) and Bihar (2.9 per cent) respectively. In all other States, the growth rates of forest output were either low or negligible. But the growth rates of output of the fishing sub-sector were found to be positive in as many as 16 out of the 19 States under study. The growth rates of fish output were relatively high in the States of Haryana, Himachal Pradesh, Manipur, Orissa, and Rajasthan due presumably to low levels of fish production in the base period in these States. Considering the country as a whole, the growth rate of net output of animal husbandry and poultry

TABLE II. TRENDS AND VARIABILITY IN THE NET OUTPUT OF VARIOUS SUB-SECTORS DURING 1970-71 TO 1981-82

State	Crop pro duction		Animal husbandry and poultry		Forestry and logging		Fishing	
	Com pound growth nate	CV (per cent)	Com pound growth rate	CV (per cent)	Com pound growth rate	CV (per cent)	Com pound growth rate	CV (per cent)
Andhra Pradesh	2.1	12.7	8.7	33.4	-3.2	13.1	2.6	10.2
Assam	2.6	10.2	4.9	19.0	0.5	17.8	2.7	9.4
Bihar	-0.1	6.9	2.7	11.6	2.9	18.3	4.3	16.7
Gujarat	1.5	23.6	3.3	15.0	-3.2	34.7	7.4	63.0
Haryana	2.4	15.8	1.6	9.6	3.3	27.7	20.7	111.2
Himachal Pradesh	1.1	11.1	4.5	17.4	-0.2	12.6	14.2	54.7
Jammu & Kashmir	3.7	14.9	1.9	10.2	4.9	24.5	3.5	14.3
Karnataka	-1.0	16.9	7.9	30.3	-7.6	29.1	-0.7	14.9
Kerala	-1.2	6.2	11.7	44.1	-0.7	9.4	-3.3	16.4
Madhya Pradesh	-1.5	15.2	6.0	23.0	0.6	31.3	4.9	17.1
Maharashtra	6.7	22.8	0.8	9.8	-1.0	13.0	4.6	21.0
Manipur	5.6	20.1	2.8	11.7	6.7	35.8	13.2	44.3
Orissa	2.4	17.6	4.9	19.0	0.9	8.6	7.7	26.4
Punjab	3.4	13.2	4.5	17.5	8.4	47.9	4.6	18.0
Rajasthan	-0.1	15.1	3.1	12.6	-2.7	15.5	7.0	24.6
Tamil Nadu	-2.1	13.2	11.4	44.5	-1.8	31.2	3.1	12.2
Tripura	4.8	14.4	1.9	10.0	4.0	35.8	-3.6	15.4
Uttar Pradesh	1.3	13.1	3.2	13.0	-2.5	10.4	4.4	15.4
West Bengal	1.6	9.6	6.1	23.4	-2.9	13.5	2.6	9.6
Average of all States	0.2	7.5	4.9	18.8	-2.4	10.5	2.3	8.8

Source: Worked out on the basis of data collected from the Estimates of State Domestic Product, CSO, Government of India, New Delhi.

was found to be highest (4.9 per cent), followed by fishing (2.3 per cent), cropping (0.2 per cent) and forestry and logging (-2.4 per cent) respectively. Also, the coefficients of variation in the output of animal husbandry and poultry were relatively high (18.8 per cent), followed by forestry and logging (10.5 per cent), fishing (8.8 per cent) and cropping (7.5 per cent).

Occupational Structure and Patterns of Poverty Distribution

In the absence of adequate data on the distribution of work force among various occupational sub-groups, it is indeed difficult to have a clear idea of the occupational structure in rural India. Nevertheless, the results of the 32nd Round of the NSS (1977-78) provide valuable information on the distribution of rural households (total as well as those below poverty line) among agricultural and non-agricultural occupations, covering mainly the self-employed and the labourers. Table III indicates that the proportion of agricultural households to the total rural households varied from 55.4 per cent in Kerala to 86.7 per cent in Madhya Pradesh. The proportion of non-agricultural households to the total rural households varied between 9 per cent in Madhya Pradesh and 35.9 per cent in Kerala. The proportion of other rural households (of mixed nature) ranged from 4.3 in Madhya Pradesh to 25.5 in Orissa.

TABLE III. OCCUPATIONAL STRUCTURE AND DISTRIBUTION OF RURAL HOUSEHOLDS BELOW POVERTY LINE

State pro	Agricultural nouseholds as proportion of total rural	Non-agricul tural house- holds as pro- portion of total households	Other house holds (of mixed nature)	Distribution of households below poverty line with less than Rs. 70 of per capita monthly consumet expenditure					
	households			Agricultural h	ouseholds	Non-agricultural households		Total rural	
				Selfemployed	Labourer	Self-employed	Labourer	(per cent)	
1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
ihra Pradesh	74.7	18.7	6.6	17.2 (51.7)	29.6 (71.5)	8.2 (60.7)	3,3 (63.5)	61.2	
am	74.0	19.4	6.6	40.4 (70.8)	14.8 (87.1)	3.8 (60.3)	10.5 (80.2)	73.2	
ar	79.3	15.6	5.1	27.4 (63.4)	32.3 (89.5)	8.0 (75.5)	3.6 (72.0)	74.7	
arat	80.9	13.5	5.6	23.5 (47.2)	24.3 (78.1)	4.2 (53.8)	3.3 (57.9)	58.5	
·yana	72.5	20.1	7.3	14.5 (26.7)	10.9 (59.3)	5.7 (49.6)	4.7 (54.7)	38.2	
ımu & Kashrı	ir 74.9	17.4	7.7	41.3 (57.5)	2.1 (67.7)	4.4 (50.6)	6.0 (69.0)	54.4	
nataka	78.6	16.4	5.0	22.6 (55.5)	30.7 (81.0)	6.2 (67.4)	4. 8 (66.7)	66.4	
ala	55.4	35.9	8.7	12.1 (42.6)	21.1 (78.1)	9.4 (60.6)	13.7 (67.2)	58.0	
dhya Pradesh	86.7	9.0	4.3	41.0 (69.7)	24.3 (87.1)	4.5 (75.0)	2.3 (76.7)	74.1	
harashtra	78.4	15.0	6.6	24.9 (62.6)	33.0 (85.5)	5.1 (68.9)	5.1 (67.1)	71.0	
nípur	80.0	13.7	6.3	44.1 (56.4)	1.1 (61.1)	2.8 (50.9)	6.3 (76.8)	56.6	
ssa	60.7	13.8	25.5	11.4 (48.3)	34.4 (92.7)	7.1 (77.2)	3.9 (84.8)	79.6	
njab	68.6	19.4	12.0	5.6 (12.6)	10.5 (43.6)	3.6 (30.8)	2.8 (36.4)	24.7	
asthan	77.5	16.4	6.1	32.4 (48.1)	6.5 (63.7)	5.2 (50.5)	3.4 (55.7)	49.5	
mil Nadu	69.6	22.8	7.6	17.6 (58.1)	32.4 (82.4)	10.0 (69.9)	5.0 (58.8)	68.4	
ar Pradesh	76.8	16.8	6.4	34.2 (58.3)	14.7 (81.2)	8 5 (70.8)	3.1 (64.6)	63.6	
st Bengal	71.1	20.6	8.3	22.0 (62.3)	32.7 (91.3)	8.4 (71.8)	6.0 (67.4)	73 6	

Source: Estimated on the basis of data collected from the results of the 32nd Round of NSS (1977-78). Figures in brackets—indicate the proportion of poor households to total households under each class.

Table III further bears out that the rural households with a per capita monthly consumer expenditure of less than Rs. 70 (at 1977-78 prices) which we may consider as the ones lying below the poverty line, seemed to be largely concentrated in agriculture, more particularly

in the agricultural labour class. Also in the majority of the States, the proportion of poor agricultural labour households to the total agricultural labour households were found to be relatively greater than the proportions of other classes of households to their respective group totals. Furthermore, it was dissappointing to note that in States like Andhra Pradesh, Bihar, Madhya Pradesh, Karnataka and Tamil Nadu, the proportion of rural households below the poverty line remained very high despite some occupational diversification involving shift from crop production to animal husbandry and poultry in all these States (Table I). In the States of Punjab, Haryana, Rajasthan, Jammu & Kashmir and Kerala, however such a diversification might have helped in reducing the incidence of poverty as may be seen from the relatively low proportion of rural households below the poverty line in these States (Table III).

Future Outlook

Table IV reveals that if we assume the existing trends in the output of crops, livestock, forestry and logging and fishing to continue, there would be a definite shift in the occupa-

TABLE IV. PROJECTED PATTERNS OF RURAL DIVERSIFICATION IN 2000 A.D.

0	Percentage share of different activities in the estimated net product in the rural sector in 2000 A.D.							
State	Crop p roduction	Animal husbandry and poultry	Forestry and logging	Fishing				
Andhra Pradesh	68.8	29.2	0.2	1.8				
Assam	88.8	6.0	1.0	4.2				
Bihar	73.9	19.2	3.4	3.5				
Gujarat	75.6	20.3	0.3	3.8				
Haryana	78.6	15.2	0.4	5.8				
Himachal Pradesh	55.4	35.2	7.4	2.0				
Jammu & Kashmir	77.2	10.3	11.7	0.8				
Karnataka	61.7	37.6	0.0	0.7				
Kerala	30.0	68.5	0.7	0.8				
Madhya Pradesh	47.2	45.0	7.2	0.6				
Maharashtra	95.9	2.4	0.5	1.2				
Manipur	78.7	3.6	2.2	15.5				
Orissa	83.8	9.3	1.2	5.7				
Punjab	78.6	20.1	1.1	0.1				
Rajasthan	59.4	39.3	0.1	1.2				
Tamil Nadu	- 25.4	71.6	0.2	2.8				
Tripura	94.9	2.0	2.7	0.3				
Uttar Pradesh	78.3	20.4	0.8	0.5				
West Bengal	78.3	16.6	0.1	4.9				
All-India average	68.1	28.9	0.9	2.1				

Source: Calculated on the basis of recent trends, as given in Table II.

tional patterns of the rural economy in many regions by the end of this century. The relative share of animal husbandry and poultry in the aggregate output would enormously increase in Tamil Nadu, Kerala, Madhya Pradesh, Karnataka, Rajasthan, Himachal Pradesh and Andhra Pradesh. Considering the country as a whole, the relative share of fishing would marginally increase from 1.4 per cent at present (Table I) to 2.1 per cent in 2000. A.D. whereas those of crop production and forestry and logging would register a decline. Nevertheless, it needs to be borne in mind that it may be really difficult to realise these projected patterns of rural diversification due to certain constraints. To a great extent, the growth rate of output in the livestock sub-sector of various regions would depend on the growth of area under fodder and permanent pastures, per capita income and investment in both individual and government accounts. In many regions, the low productivity of the crop subsector itself may act as a major bottleneck. Furthermore, the Planning Commision² has estimated the incremental capital-output ratio (ICOR) for various sub-sectors of the rural economy to be 3.61 for agriculture (including animal husbandry), 0.97 for forestry and logging and 8.83 for fishing. Although the past trends in the output of fishing were found to be positive in a majority of the States, the relatively high ICOR may restrict its future growth. Conversely, the relative share of forestry and logging in the net output of the rural sector should increase in future due to both low capital-output ratio and low coverage of area under forest in many regions, notwithstanding the existing negative trends.

CONCLUSIONS

It becomes clear from the foregoing discussion that despite some occupational shifts in the rural sector from crop production and forestry and logging to animal husbandry and poultry and fishing in recent years, the country's rural economy may still continue to remain largely crop based in the years to come. Moreover, occupational shifts from crop production to animal husbandry, poultry and fishing as either independent or subsidiary occupations do not seem to have uniform bearing on the incidence of rural poverty in all the regions of the country and therefore no generalised relationship between rural diversification and poverty could be established.

^{1.} T. Haque, C. C. Maji and P. K. Joshi, "Some Economic Aspects of Livestock Enterprise in India", Annals of Agricultural Research, Vol 1, No.1, 1980, pp. 112-122.

^{2.} Government of India: A Technical Note on the Sixth Five Year Plan of India (1980-85), Planning Commission, New Delhi, July 1981, p.202.