

Decomposition of Rural Poverty Reduction in Bangladesh: The Recent Trend

Final Report

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Prepared by

Mohammed Helal Uddin

On behalf of

Economic Research Group (ERG)

House # 304, Road # 19B,
DOHS, Mohakhali, Dhaka
<http://www.ergonline.org>

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1. Introduction:

Bangladesh was able to drastically reduce poverty rates during the last decade. On an average poverty declined 1.74 percentage points per year despite a series of adverse shocks that affected Bangladesh in 2007/2008. Moreover, Bangladesh experienced an average growth rate of 5.8 percent annually over that decade. Urban areas have achieved remarkable progress with a 39.5 percent reduction in poverty. However, extreme poverty which declined by 44 percent in rural areas compared to 61 percent in urban areas, continues to be a significant rural phenomenon (**World Bank Poverty Assessment Report, 2013**). Based on the data obtained from last three (2000, 2005 and 2010) HIES surveys, the report claims that labor income was the single most important contributor to poverty reduction; while the growth in labor income, in turn, was mostly driven by increases in farm income.

According to **Inchauste *et al*, 2012**, the contributions to moderate poverty reduction on account of labor markets amount to 61 percent in Bangladesh.... Within this, the increase in the returns to endowments or characteristics explains most of the observed poverty reduction. Increases in real wages and higher productivity were shown as the main contributors to poverty reduction in this case. Contrary to popular beliefs, the study claims that increases in farm incomes were mostly responsible for poverty reduction in Bangladesh. Along this line of reasoning, World Bank report states that the rural poverty reduction was due to (i) increase in the demand for unskilled workers, and (ii) increase in real rural wages. However, an adequate evidence for the increase in demand for unskilled labors in the rural areas was not provided in that report.

The report provides figures which indicate change in the ratio of the rural working age population to total population. Despite it does not mean that there has been a decline in the ratio of rural to total national working age population in each period and thus a corresponding increase in the ratio of urban to the national working age population in each period. Since changes in rural real wages depend on both demand and supply of rural labor, we cannot argue that the migration has been an important part in raising real wages in rural areas; not even

when we accept that there has been a consistent migration of rural working age population to the urban areas. This is very important for our analysis of rural poverty reduction.

A bigger contribution of rural nonfarm income and overseas remittances to poverty reduction has been a widely acceptable proposition to many of us in Bangladesh. With the dominance of farm income in the reduction of national poverty as claimed, greater prevalence of extreme poverty in rural areas deserves further scrutiny. From the policymaking perspective, it is important to understand the factors driving these seemingly paradoxical outcomes.

The World Bank Poverty Report only peripherally discusses this issue. This study will allow us to test whether the broad conclusions in the World Bank Poverty Report about the drivers of poverty reduction in rural Bangladesh are right. To better understand the drivers of poverty reduction, we need to decompose the reductions in poverty into specific components of consumption or income.

1.1 Research Objectives:

a) To investigate the sources of growth of income, ranking them in the order of importance to the growth of income of each quintile. It will allow us to see if the poor, who are concentrated in the lower income quintiles, gain most from farm or from non-farm sources of income growth. Also within the farm or non-farm income what are the relative contributions of its different sources. In addition, the study will attempt to test whether rural poverty reduction was mainly driven by increases in the demand for unskilled workers and rural real wages or not.

b) The second question we intend to examine how (a) the per capita income of household in each occupational category has changed over time and (b) whether poverty rate in each occupational category has changed. This is very different from the first question which is to estimate the contribution of total income from each sector to the rural income. To address this question we need to investigate the sources of rural poverty reduction over the years between 1991, 1995, 2000, 2005 and 2010. The idea is to identify the ranking of the relative contribution

of reduction in poverty rate in each of the occupations to the reduction of overall rural poverty rate.

2. Breakdown of Rural Income Growth into Sectors

2.1 Categorization of the rural income into sectors

One of the research questions of this study is to assess the extent of the decline in rural poverty in Bangladesh due to increase in rural income from the agricultural sector. The total rural income from the agricultural sector is composed not only of the income of those households whose major occupation is agriculture (i.e., largest source of income is from agriculture) but also of those whose major occupation is not agriculture but a smaller share of their income is derived from agriculture. To derive the total rural income from agriculture we need to add income derived from agriculture not only of those whose major occupation is agriculture, but also income derived from agriculture of those whose major source of income is outside agriculture.

To better understand the sector dynamics of rural poverty reduction we classify the rural households as follows:

(1) Agriculture: farming and agricultural wages & salary

- 1a. Farming
- 1b. Agricultural wages & salary

(2) Non-agriculture

- 2a. Non-agricultural Wage
- 2b. Non-agricultural Salary
- 2c. Non-farm Enterprise

(3) Remittances and transfers

- 3a. Foreign Remittances
- 3b. Transfers (+ domestic remittances)

(4) Other Income

- 4a. Rent from Land
- 4b. Return to Other Assets

4c. Others

Even though subsector (1b) includes wages and salaries, it presents almost entirely wages. In case of HIES 1991-92 and 1995-96 survey, salary was not shown separately. In HIES 2000 salary was in the questionnaire separately but there was no household observation in this category. However, very few households (only 41) were observed in HIES 2005 and 2010. Thus, we kept wages and salary together to make per capita income from this category comparable across years.

2.2 Decomposition of per capita rural income into sectors

2.2.1 Decomposition of overall per capita rural income into sectors

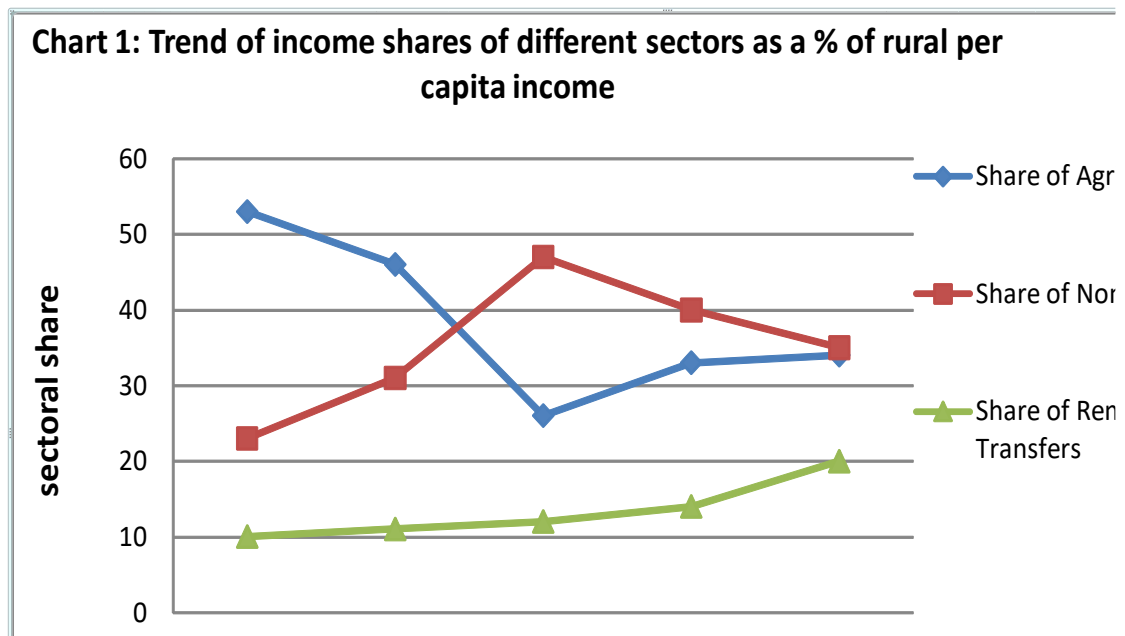
The contribution of each of the sectors (as defined above) to the total income of all the rural households have been calculated and presented below. Table 1a presents annual average per capita nominal income of rural households and its breakdown into different sectors as defined above (please see Table 1b in Appendix for annual average per capita real income).

First column of table 1a presents the broad sector categories, second column shows the breakdown of per capita nominal income of rural households into sectors where income includes all income (i.e., income from both major and other occupations). Third column provides us with the contribution of each sector to the total per capita nominal of all rural households. Obviously, this column remains the same even if we consider real incomes instead of nominal incomes, which is manifested in Appendix Table 1b.

Table 1a. Breakdown of Per Capita Annual Income of Rural Household into Sectors (Current prices)

Income from	1991-92		1995-96		2000		2005		2010	
	PC Income	As %	PC Income	As %	PC Income	As %	PC Income	As %	PC Income	As %
1. Agriculture: farming and agricultural Wages & Salary	3558	53	3548	46	3062	26	4913	33	9133	34
1a. Farming	2698	40	2607	34	2125	18	3389	22	6878	26
1b. Wages & Salary	860	13	941	12	937	8	1524	10	2256	8
2. Nonagricultural income	1564	23	2396	31	5562	47	6020	40	9253	35
2a. Non-agricultural Wage	676	10	1243	16	1000	8	1501	10	2545	9
2b. Non-agricultural Salary		0		0	2065	17	2211	15	3054	11
2c. Non-farm Enterprise	888	13	1153	15	2497	21	2307	15	3655	14
3. Remittances and Transfers	755	11	812	10	1449	12	2084	14	5378	20
3a. Foreign Remittances	755	11	812	10	861	7	1314	9	3974	15
3b. Tranfers (+ domestic remittances)		0		0	587	5	770	5	1404	5
4. Other Income	876	13	1006	13	1882	16	2061	14	3024	11
4a. Rent from Land	61	1	90	1	338	3	494	3	691	3
4b. Return to Other Assets		0		0	457	4	109	1	296	1
4c. Others	815	12	915	12	1088	9	1457	10	2038	8
Total (1+2+3+4)	6753	100	7762	100	11956	100	15077	100	26789	100

What is clear from this table is that contribution of agriculture went down from 53 percent in 1991-92 to 34 percent in 2010 whereas the contribution of non-agriculture went up from 23 percent to 35 percent during that period. Contribution of remittances and transfers went up from 11 percent in 1991-92 to 20 percent in 2010. The fluctuation of these contributions over the 20 years period is presented in Chart 1a below.



As shown in Chart 1a, contribution of agriculture dropped from 1991 till 2000 and it started increasing thereafter. To the contrary, contribution of non-agriculture start increasing from 1991 till 2000 and it started falling thereafter. Contributions from both the sectors converged to nearly the same level in 2010. However, contribution of remittances and transfers increased steadily over the 20 years period.

2.2.2 Decomposition of per capita rural income into sectors at quintile level

To understand the link between rural poverty reduction and sector dynamics we have to examine what happened at different quintiles, especially at the bottom two quintiles. Like before, first column of table 1c presents the sector category; second column shows the breakdown of per capita nominal income of rural households for quintile 1 into sectors. Third column provides us with the contribution of each sector to the total per capita nominal of all rural households for quintile 1.

Table 1c: Breakdown of per capita annual income into Sectors (Current prices) - quintile 1

Income from	1991		1995		2000		2005		2010	
	PCI	As %	PCI		PCI		PCI		PCI	
1. Agriculture: farming and agricultural wages & salary	1563	0.55	1852	0.57	1692	0.52	2209	0.51	3502	0.47
1a. Farming	671	0.24	858	0.26	677	0.21	953	0.22	1916	0.26
1b. Wages & Salary	892	0.32	994	0.31	1015	0.31	1257	0.29	1586	0.21
2. Nonagricultural income	707	0.25	813	0.25	890	0.27	1219	0.28	2325	0.31
2a. Non-agricultural Wage	351	0.12	515	0.16	168	0.05	720	0.17	1223	0.16
2b. Non-agricultural Salary		0.00		0.00	365	0.11	139	0.03	428	0.06
2c. Non-farm Enterprise	356	0.13	298	0.09	357	0.11	361	0.08	674	0.09
3. Remittances and Transfers	235	0.08	169	0.05	266	0.08	366	0.09	1082	0.14
3a. Foreign Remittances	235	0.08	169	0.05	18	0.01	37	0.01	485	0.06
3b. Tranfers (+ domestic remittances)		0.00		0.00	249	0.08	329	0.08	597	0.08
4. Other Income	316	0.11	425	0.13	431	0.13	503	0.12	584	0.08
4a. Rent from Land	6	0.00	8	0.00	73	0.02	95	0.02	172	0.02
4b. Return to Other Assets		0.00		0.00	33	0.01	9	0.00	24	0.00
4c. Others	310	0.11	417	0.13	325	0.10	398	0.09	389	0.05
Total (1+2+3+4)	2820		3258		3280		4297		7494	
N	768		1008		1245		1280		1567	

As shown in Table 1c, contribution of agriculture had been over 50 percent till 2005 with its peak of 57 in 1995. It fell down to 47 percent in 2010. If we look into subsectors of agriculture we find contribution of farming to increase from 24 percent in 1991 to 26 percent in 2010 along with fluctuations in between. However, contribution of wages and salary decreased gradually from 32 percent in 1991 to 29 percent in 2005 and then a sudden fall to 21 percent in 2010. We find a rise in farming income and a sharp fall in wages and salary income over 2005-10.

Contribution of non-agriculture showed a gradual increase from 25 percent in 1991 to 31 percent in 2010. Contribution of remittances and transfers fluctuated around 8 percent till 2005 and thereafter a shoot up to 14 percent in 2010. Quintile 1 figures make it clear that rural households at the bottom are still heavily dependent on agriculture despite their increasing dependence on non-agriculture.

Table 1d. Breakdown of per capita annual income into Sectors (Current prices) - quintile 2

Income from	1991		1995		2000		2005		2010	
	PCI		PCI		PCI		PCI		PCI	
1. Agriculture: farming and agricultural wages & salary	2491	0.57	2590	0.53	2632	0.43	3557	0.46	5673	0.44
1a. Farming	1512	0.35	1515	0.31	1204	0.20	1868	0.24	2959	0.23
1b. Wages & Salary	979	0.22	1075	0.22	1428	0.23	1689	0.22	2714	0.21
2. Nonagricultural income	1015	0.23	1417	0.29	2306	0.37	2777	0.36	4742	0.36
2a. Non-agricultural Wage	419	0.10	781	0.16	510	0.08	1529	0.20	2419	0.19
2b. Non-agricultural Salary		0.00		0.00	909	0.15	419	0.05	892	0.07
2c. Non-farm Enterprise	597	0.14	636	0.13	888	0.14	830	0.11	1430	0.11
3. Remittances and Transfers	417	0.10	238	0.05	455	0.07	501	0.07	1368	0.11
3a. Foreign Remittances	417	0.10	238	0.05	108	0.02	92	0.01	716	0.05
3b. Transfers (+ domestic remittances)		0.00		0.00	347	0.06	410	0.05	653	0.05
4. Other Income	449	0.10	645	0.13	764	0.12	861	0.11	1239	0.10
4a. Rent from Land	15	0.00	21	0.00	110	0.02	176	0.02	281	0.02
4b. Return to Other Assets		0.00		0.00	51	0.01	29	0.00	28	0.00
4c. Others	434	0.10	624	0.13	604	0.10	656	0.09	931	0.07
Total (1+2+3+4)	4373		4890		6158		7696		13023	
N	768		1008		1262		1279		1566	

However, the dependence on agriculture is slightly lowered in case of quintile 2 rural households (Table 1d). For this set of households, contribution of agriculture came down from 57 percent in 1991 to 44 percent in 2010 whereas contribution of non-agriculture came up from 23 percent in 1991 to 36 percent in 2010, which shows an increasingly greater dependence on non-agriculture than quintile 1 households.

If we look into subsectors of agriculture we find contribution of farming to decrease from 35 percent in 1991 to 23 percent in 2010. However, contribution of wages and salary remains almost the same. Unlike quintile 1, we find no sharp change in the incomes of farming and that of wages and salary over 2005-10. Similar trend is obvious for other quintiles even though the dependence on agriculture and farming is more pronounced. Another striking change to cite is the increasing dependence of top quintile households on remittances and transfers. Contribution of remittances and transfers increased from 13 percent in 1991 to 28 percent in 2010 (please see Table 1e-1g in Appendix).

2.3 Decomposition of per capita income growth into sectors

2.3.1 Decomposition of growth of overall per capita income into sectors

Thus far we have decomposed overall per capita income into per capita income of sectors. We know the dynamics of sectoral composition of per capita income of rural households at quintiles and all together. To understand contribution of these sectors to poverty reduction we have estimated the growth rate of per capita income for each sector. The weighted average of the sectoral growth rates, weights being income shares of each sector, is the overall growth rate. It holds for each quintile as well as for overall rural per capita income.

We obtain a sector's contribution to overall growth by multiplying each sectoral growth by the corresponding sector's income share in overall income. This contribution can also be estimated as a ratio of inter year differences for each sector's income to the total household income. This exercise is intended to indicate the relative contribution of change in income of each sector to the change in rural per capita income. This has been done for (a) for each quintile and b) for all the quintiles taken together.

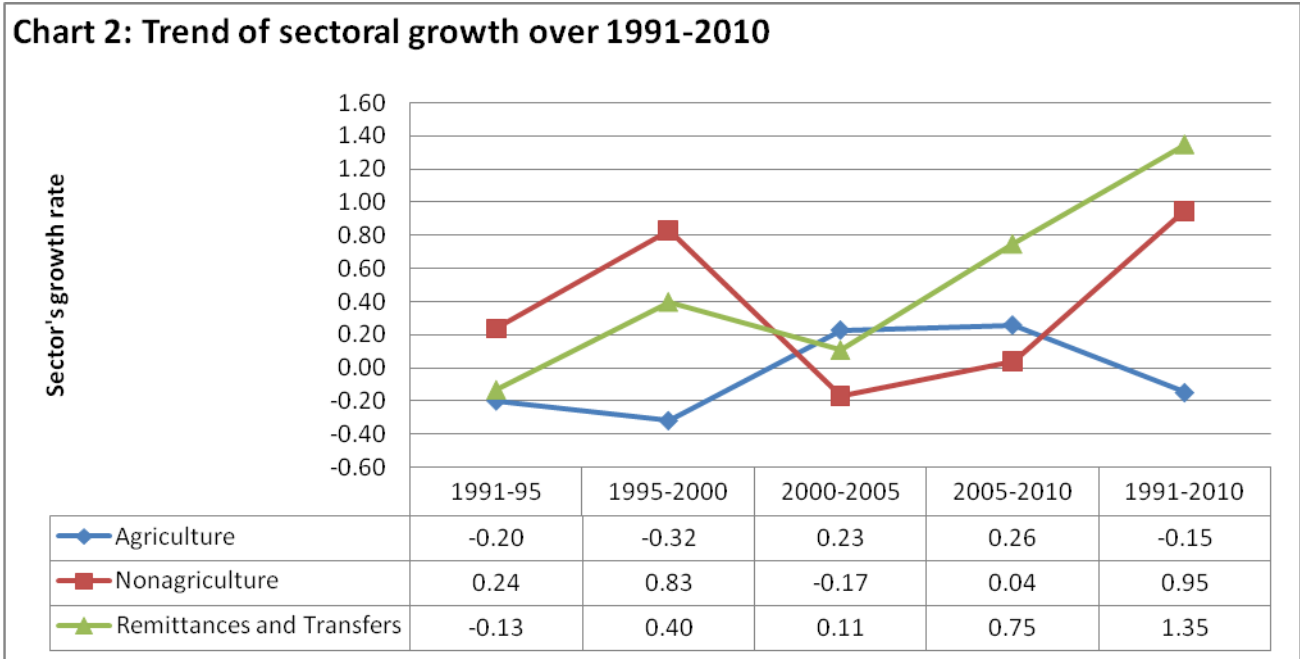
Table 2a: Growth of per capita real income of each sector and each sector's contribution to overall growth

Income from	1991-95		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Contr.	Growth	Contr.	Growth	Contr.	Growth	Contr.	Growth	Contr.
1. Agriculture: farming and agricultural Wages & Salary	-0.20	-0.10	-0.32	-0.15	0.23	0.06	0.26	0.08	-0.15	-0.08
1a. Farming	-0.22	-0.09	-0.36	-0.12	0.23	0.04	0.37	0.08	-0.16	-0.06
1b. Wages & Salary	-0.12	-0.01	-0.22	-0.03	0.25	0.02	0.00	0.00	-0.13	-0.02
2. Nonagricultural income	0.24	0.05	0.83	0.25	-0.17	-0.08	0.04	0.02	0.95	0.22
2a. Non-agricultural Wage	0.48	0.05	-0.37	-0.06	0.15	0.01	0.15	0.01	0.24	0.02
2b. Non-agricultural Salary	.	0.00	.	0.21	-0.18	-0.03	-0.07	-0.01	.	0.15
2c. Non-farm Enterprise	0.05	0.01	0.70	0.10	-0.29	-0.06	0.07	0.01	0.36	0.05
3. Remittances and Transfers	-0.13	-0.01	0.40	0.04	0.11	0.01	0.75	0.10	1.35	0.15
3a. Foreign Remittances	-0.13	-0.01	-0.17	-0.02	0.17	0.01	1.05	0.09	0.74	0.08
3b. Tranfers (+ domestic remittances)	.	0.00	.	0.06	0.01	0.00	0.23	0.01	.	0.07
4. Other Income	-0.07	-0.01	0.47	0.06	-0.16	-0.02	-0.01	0.00	0.14	0.02
4a. Rent from Land	0.20	0.00	1.95	0.02	0.13	0.00	-0.05	0.00	2.75	0.02
4b. Return to Other Assets	.	0.00	.	0.05	-0.82	-0.03	0.83	0.01	.	0.01
4c. Others	-0.09	-0.01	-0.07	-0.01	0.03	0.00	-0.05	-0.01	-0.17	-0.02
Total (1+2+3+4)	.	-0.07	.	0.21	.	-0.03	.	0.20	.	0.31

Table 2a presents growth of per capita real income for each sector and each sector's contribution to overall growth. Second column of this table presents growth of per capita real income of each sector whereas third column presents each sector's contribution to overall per capita income growth for 1991-95. Other columns to the right present the corresponding figures for other time periods.

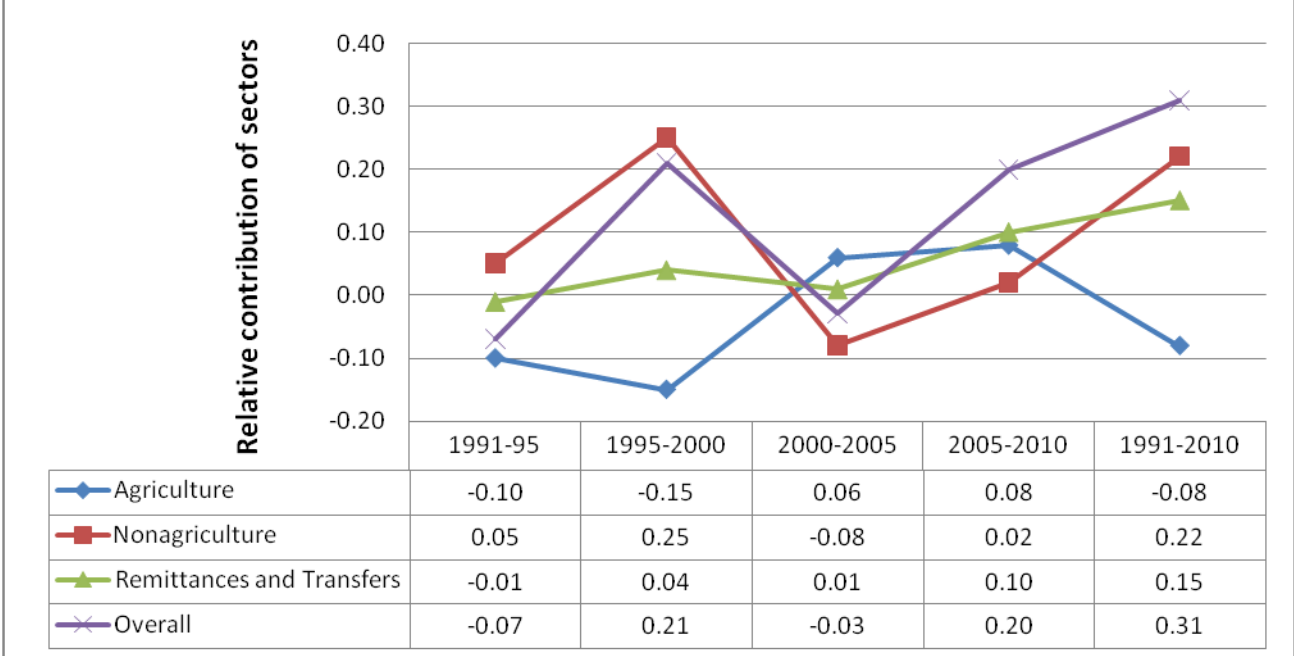
Real per capita income of agriculture decreased 20 percent over 1991-95 along with its -10 percentage points of contribution to overall -7 percent growth over that period. It experienced minus 32 percent growth over 1995-2000 with its minus 15 percentage points of contribution to overall 21 percent growth. Over 2000-05 it grew 23 percent with its 6 percentage points contribution to overall minus 3 percent growth. Agriculture grew 26 percent over 2005-10 with its 8 percentage point contribution to overall 20 percent growth. This zig-zag growth pattern is also observed for non-agriculture, but only with reverse trend in relation to agriculture. There movements are obvious in Chart 2. Here remittances and transfers showed a strong upward movement most of the time. The disturbing factor is that agriculture grew minus 15 percent

over the 20 years period whereas non-agriculture grew by 95 percent and remittances and transfers grew by 135 percent.



Dynamics of relative contribution of sectors to overall per capita income growth is depicted in Chart 3 below. Agriculture’s contribution to overall growth was negative for 1991-95 and 1995-2000 and its contribution was positive for 2000-2005 and 2005-2010. Despite this agriculture experienced a negative growth of 8 percent over the 20 years period. Overall growth of 31 percent over that period was driven by non-agriculture and remittances and transfers.

Chart 3: Trend of relative contribution of sectors to overall PCI growth



It is noticeable that agriculture decline for the first 10 years of the considered 20 years with strong positive contribution from non-agriculture. To the contrary, agriculture grew strongly for later 10 years with a negative growth from non-agriculture.

2.3.2 Decomposition of growth of per capita income into sectors at quintile level

Since our ulterior motive is to link this discussion with poverty reduction it is meaningful to explore this sectoral growth and relative contribution of each sector to overall growth at quintile level. Table 2c presents sectoral growth and relative contribution of each sector to overall growth for quintile 1 (please see Table 2b in Appendix for breakdown of PCI, quintile 1).

Quintile 1 figures show that both agriculture and non-agriculture have negative contribution to overall quintile 1 growth for the first 10 years whereas positive contribution for the later 10 years. This is in contrast to what we described regarding relative contribution to overall growth in previous paragraph. Relative contribution of agriculture to overall quintile 1 growth was negative 14 percent for the 20 years period while this is 2 percent for non-agriculture. In agriculture, farming income decreased by 26 percent with its -1 percentage point contribution to quintile 1 growth whereas quintile 1 income decreased by 12 percent over the 20 years

period. Wages and salary decreased by 41 percent along with its -13 percentage point contribution to quintile 1 growth. Thus, it is conclusive that growth of per capita real income of agriculture was highly negative and consequently its contribution to quintile 1 growth was negative for the 20 years period. Wages and salary decreased much more than farming. Non-agriculture did not play significant role to push quintile 1 growth up.

Table 2c: Growth of per capita real income of each sector and each sector's relative contribution to overall growth - Quintile 1

Income from	1991-1995		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Contr.	Growth	Contr.	Growth	Contr.	Growth	Contr.	Growth	Contr.
1. Agriculture: farming and agricultural wages & salary	-0.04	-0.02	-0.28	-0.16	0.00	0.00	0.07	0.04	-0.26	-0.14
1a. Farming	0.03	0.01	-0.38	-0.10	0.08	0.02	0.36	0.08	-0.06	-0.01
1b. Wages & Salary	-0.10	-0.03	-0.20	-0.06	-0.05	-0.01	-0.15	-0.04	-0.41	-0.13
2. Nonagricultural income	-0.07	-0.02	-0.14	-0.03	0.05	0.01	0.29	0.08	0.09	0.02
2a. Non-agricultural Wage	0.18	0.02	-0.74	-0.12	2.29	0.12	0.15	0.03	0.15	0.02
2b. Non-agricultural Salary	.	0.00	.	0.09	-0.71	-0.08	1.09	0.04	.	0.05
2c. Non-farm Enterprise	-0.33	-0.04	-0.06	-0.01	-0.22	-0.02	0.27	0.02	-0.38	-0.05
3. Remittances and Transfers	-0.42	-0.04	0.24	0.01	0.06	0.00	1.00	0.09	0.52	0.04
3a. Foreign Remittances	-0.42	-0.04	-0.92	-0.05	0.60	0.00	7.99	0.07	-0.32	-0.03
3b. Transfers (+ domestic remittances)	.	0.00	.	0.06	0.02	0.00	0.23	0.02	.	0.07
4. Other Income	0.09	0.01	-0.20	-0.03	-0.10	-0.01	-0.21	-0.02	-0.39	-0.04
4a. Rent from Land	0.10	0.00	6.38	0.02	0.00	0.00	0.22	0.00	8.88	0.02
4b. Return to Other Assets	.	0.00	.	0.01	-0.78	-0.01	0.72	0.00	.	0.00
4c. Others	0.09	0.01	-0.39	-0.05	-0.06	-0.01	-0.34	-0.03	-0.59	-0.06
Total (1+2+3+4)		-0.07		-0.21		0.01		0.18		-0.12

Similar trend is observed for quintile 2 households. Per capita real income of agriculture decreased 25 percent over the 20 years period with its -14 percentage point contribution to the growth of quintile 2. Here a sharp decline is observed farming than wages and salary. A sharp increase is observed for non-agriculture. As we move to upper quintile, non-agriculture and remittances and transfers picked up (Please see Table 2d-2g in Appendix).

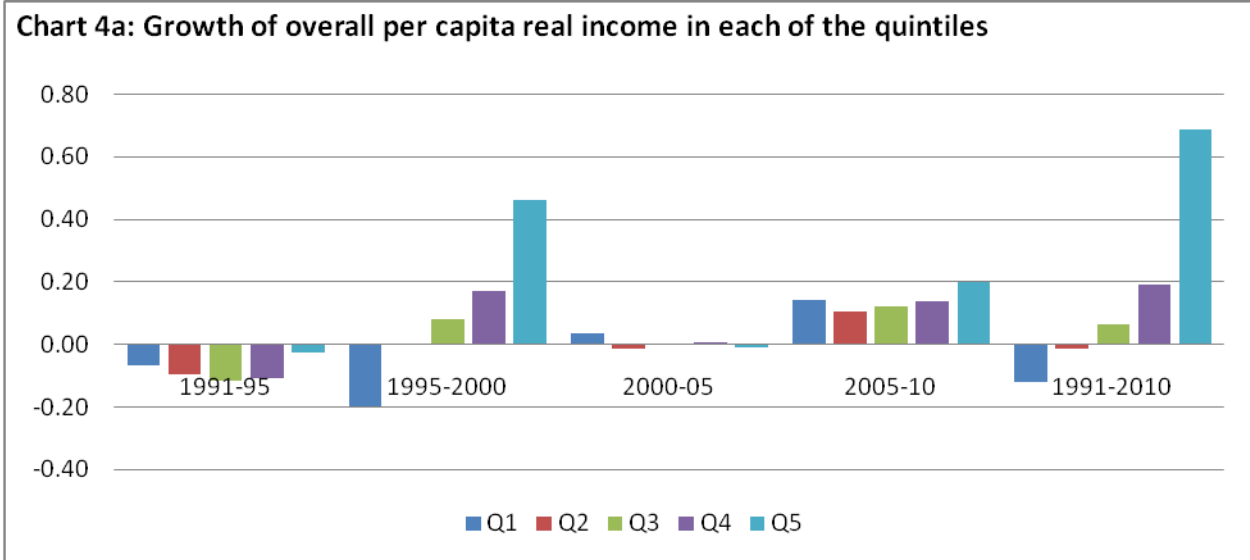
We expect a strong growth in per capita real income for rural households in bottom quintiles to match the poverty reduction as claimed. Of course, this growth has to come from agriculture and non-agriculture. But the sharp decline in real per capita income from agriculture and a small increase in real per capita from non-agriculture do not explain such reality. Before we explain this inconsistency it may be helpful to present the growth of per capita real income

between the years for each quintile and for the overall rural income together. Table 2h presents both overall and quintile level per capita real income and their growth over different periods.

Table 2h: Growth of overall per capita real income in each of the quintiles

Quintile	Per capita real income in each quintile					Growth in quintiles over the periods				
	1991	1995	2000	2005	2010	1991-95	1995-2000	2000-05	2005-10	1991-2010
Q1	2820	2628	2102	2170	2473	-0.07	-0.20	0.03	0.14	-0.12
Q2	4373	3943	3948	3887	4298	-0.10	0.00	-0.02	0.11	-0.02
Q3	5766	5089	5482	5457	6124	-0.12	0.08	0.00	0.12	0.06
Q4	7601	6782	7918	7949	9040	-0.11	0.17	0.00	0.14	0.19
Q5	13203	12856	18795	18614	22274	-0.03	0.46	-0.01	0.20	0.69
Total	6753	6260	7584	7353	8841	-0.07	0.21	-0.03	0.20	0.31

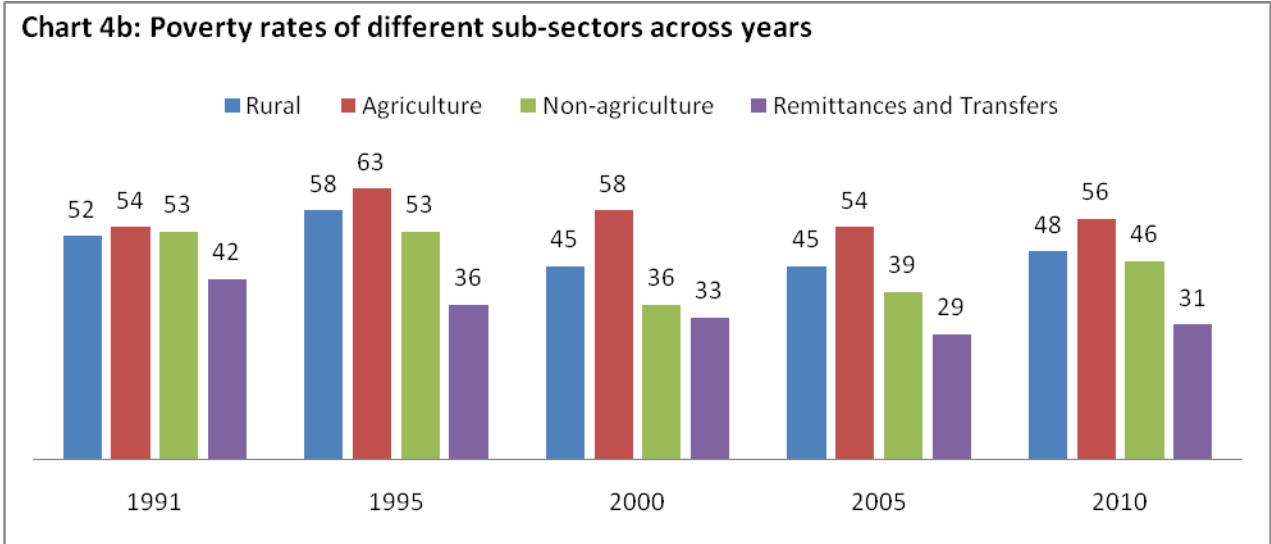
As shown in Table 2h and as depicted in Chart 4a, growth of per capita real income of quintile 1 was -7 percent for 1991-1995 and -20 percent for 1995-2000 while it was positive for the next two periods with the highest growth of 14 percent over 2005-10. But the disturbing factor is that its growth was -12 percent for the 20 years period. Its growth was -20 percent even when the overall per capita real income grew 21 percent over 1995-2000. For the 20 years period, negative growth is also observed for quintile 2. The highest 69 percent growth is observed for the top quintile.



This huge negative growth in overall per capita real income at the lowest quintile does not sit along with the huge poverty reduction what we experienced according to many studies. Probably, we need to reassess income data generation process altogether.

2.4 Comparison of income and poverty figures with other studies

Chart 4a provides us with the poverty trend over the years across three major income groups along with the rural poverty rates. Overall rural poverty rates have increased to 48 percent in 2010 from 45 percent in 2000 and 2005. Agriculture poverty rates have increased to 56 percent in 2010 from 54 percent in 2005 even though it increased to 58 percent in year 2000. The non-agricultural poverty rates remained the same 53 percent in both 1991 and 1995 and then experienced a steady decrease over the years 36 percent in 2000, thereafter it increased gradually to 46 percent in 2010. Remittances and transfers showed a steady fall in poverty rates except a slight increase in 2010. The question is why this trend seems to contradict the one claimed based on the BBS estimates.



It is difficult to conclude from Chart 4a as there is a huge difference between the poverty figures we estimated from income data and what BBS did based on expenditure data. Applying the same poverty line income and weight structure we have obtained the national poverty rate of 31.5 percent with expenditure data and 44 percent with income data for 2010.

Table 2i: Per Capita Income for rural households					
	1991-92	1995-96	2000	2005	2010
Current Price					
BBS (Ref: Khan 2008)	6972	8361	11136	14952	25560
Khan (2014)	6864	7773	10621	14257	24101
Khan (2008)	6744	7583	10464	13720	
Ours (2015)	6753	7762	11956	15077	26789
Constant Price					
(1992/92 = 100)					
BBS (Ref: Khan 2008)	6972	6743	7138	7551	8435
Khan (2014)	6864	6269	6737	6953	7953
Khan (2008)	6744	6115	6708	6929	
Ours (2015)	6753	6260	7584	7353	8840
CPI Deflator for rural	1	1.24	1.56	1.98	3.03

To make sure that we have done our calculations properly, we have compared our income figures with what reported in the studies undertaken by AR Khan and Mahbub Hossain, and BBS (Table 2i). Our per capita income figures at current prices are not very different from the corresponding figures from others. Our income figures are slightly (about 5%) higher than others.

Table 2j: Alternative Estimates of Rural Poverty Rates					
	1991-92	1995-96	2000	2005	2010
WB	61	55	53	45	.
Khan & Sen	47	53	45	48	.
Official	61	.	52	44	35.2
Ours	52	58	45	45	48

Source: BBS, WB and Khan and Sen Estimates

Poverty rate of 52 percent for 1991-92 is lower than 61 percent by both WB and BBS, a slight higher than 47 percent of Khan and Sen (Table 2j). Poverty rate of 58 percent for 1995-96 is slightly higher than 55 percent of WB and 53 percent of Khan and Sen. Poverty rate of 45 percent for 2000 exactly matches that of Khan and Sen, which is lower than 53 percent of WB and 52 percent of BBS. Similar close proximity is found for year 2005. Unfortunately, we have only BBS figure to compare with for 2010 which is substantially lower than ours. Since the same procedure is used for all the years we can take 48 percent rural poverty rate with confidence.

2.5 Decomposition of total income growth into sectors

2.5.1 Total income growth

Per capita real income drops drastically in all the categories because of the fact that the number of households in each quintile increased from 768 in 1991 to 1567 in 2010, a 104 percent increase over the 20 years period. If we consider growth of total real income instead of per capita real income then we obtain a very optimistic scenario. But there are limitations of going through this practice. This total is taken over sampled households, not for the entire population. As long as there is no systematic bias toward agricultural income or non-agricultural income we may compare their growth over time, and decompose total income growth into sectors.

We obtained 79 percent growth of total real income for quintile 1 households and 100 percent growth of total real income for quintile 2 households over the 20 years period. We obtain 51 percent increase for agriculture and 121 percent increase for non-agriculture for quintile 1 households. Agriculture grew 11 percent over 1991-2000 and 36 percent over 2005-2010. To the contrary, non-agriculture grew 29 percent over 1991-2000 and 71 percent over 2005-2010 (Table 3a). We obtain 92 percent increase for farming and 45 percent increase for wages and salary (Table 3b).

Table 3a: Total Income growth of agriculture and nonagriculture at different quintile					Table 3b: Total Income growth of farming and wages and salary at different quintile				
		1991-2000	2000-2010	1991-2010			1991-2000	2000-2010	1991-2010
Q1	Agriculture	0.11	0.36	0.51	Q1	Farming	0.04	0.85	0.92
	Nonagriculture	0.29	0.71	1.21		Wages and salary	0.17	0.02	0.20
Q2	Agriculture	0.10	0.39	0.53	Q2	Farming	-0.17	0.59	0.32
	Nonagriculture	1.37	0.33	2.14		Wages and salary	0.52	0.23	0.86
Q3	Agriculture	-0.07	0.65	0.54	Q3	Farming	-0.24	0.67	0.27
	Nonagriculture	2.20	0.26	3.04		Wages and salary	0.37	0.63	1.24
Q4	Agriculture	-0.10	0.86	0.69	Q4	Farming	-0.13	0.74	0.52
	Nonagriculture	2.48	0.18	3.10		Wages and salary	0.06	1.30	1.43
Q5	Agriculture	-0.26	1.66	0.97	Q5	Farming	-0.21	1.65	1.09
	Nonagriculture	3.99	-0.09	3.57		Wages and salary	-0.60	1.85	0.13

It is clear from these two tables that agriculture grew slowly whereas non-agriculture grew fast during 1991-2000. To the contrary, agriculture grew fast whereas non-agriculture grew slowly during 2000-2010. Farming follows the trend of agriculture exactly across all quintile while wages and salary follows the trend of agriculture for top 3 quintiles with opposite trend for bottom 2 quintiles.

One can argue that agriculture grew more during 2000-2010 because relatively more households were engaged in agriculture during that period. But it will be shown in subsection 3.2 that agriculture was the main occupation for 58 percent of households in 1991, 53 percent of households in 1995 and 37 percent of households in 2000 whereas it was the major occupation for 43 percent of households in 2005 and 38 percent of households in 2010. To the contrary, when non-agriculture grew fast during 1991-2000 it was major occupation for 25 percent of households in 1991, 34 percent of households in 1995 and 46 percent of households in 2000 whereas it was the major occupation for 41 percent of households in 2005 and 2010. Thus, greater growth of each of the sectors has to be explained by higher productivity and other related factors other than the number of households engaged in them.

2.5.2 Total income growth at bottom quintiles together

Table 3c presents total income growth for bottom 2 quintiles together as well as bottom 3 quintiles together to get even better sense of the trend of agriculture and non-agriculture. For bottom 2 quintiles together agriculture's low growth (11%) and non-agriculture's high growth (93%) are confirmed for 1991-2000. But agriculture's 38 percent growth is still dominated by non-agriculture's 43 percent growth for 2000-2010. If we look into bottom 3 quintile households together, non-agriculture's dominance with 145 percent growth over agriculture's 3 percent growth during 1991-2000 is beyond doubt established. To the contrary, agriculture's dominance with 49 percent growth over non-agriculture's 34 percent growth during 2000-2010 is also beyond doubt established. In addition, total real income derived from remittances and

transfers grew faster in 1991-2000 than 2000-2010. This trend continued even with the inclusion of other top two quintile households.

Table 3c: Total Income growth of sectors at quintile 1 & 2 together and quintile 1, 2 & 3 together				
		1991-2000	2000-2010	1991-2010
Q1+Q2	Agriculture	0.11	0.38	0.52
	Farming	-0.11	0.68	0.50
	Wages and salary	0.35	0.14	0.55
	Nonagriculture	0.93	0.43	1.76
	Remittances and transfers	0.15	1.21	1.53
Q1+Q2+Q3	Agriculture	0.03	0.49	0.53
	Farming	-0.18	0.68	0.38
	Wages and salary	0.36	0.30	0.77
	Nonagriculture	1.45	0.34	2.29
	Remittances and transfers	0.52	1.33	2.54

This exercise enables us to conclude that the growth of agricultural income has made the major contribution to the income of rural households during 2000-2010 but it is the growth of nonagricultural income which has made the major contribution to the income of rural households during the periods of 1991-2000. However, dominance lies with non-agriculture if we consider entire 1991-2010 period.

To conclude on the dominance of either of the sectors on the income of the rural poor we need to look into the distribution of the growth described above. Since total real income increased in such a big magnitude, we need to explore their concentration among the households. To do this correctly, we need to examine the per capita real income growth over income groups defined by occupations.

3. Decomposition of Rural Income Growth into Occupations

In this section, households have been categorized into occupations and income groups for the all five survey years. In case of this categorization of households, we consider the income shares of occupations. A household has been assigned to the occupation which has the highest income share. For all of the four main categories at least 75 percent of their average per capita

income comes from the main occupation. Thus, this classification of households with respect to their occupational income shares provides us with a meaningful categorization. For the purpose of our analysis, we have obtained per capita income in each of the occupations of the rural economy. The poverty rate and the number of households in each of the occupations have been calculated for each of the years. From the number of households, we have obtained the shares of households for each of these occupations. Taking combination of these two, the overall rural poverty rate has been calculated as weighted average of the poverty rates in each of the occupations.

3.1 Analyzing poverty and income groups in different years

Table 4a presents the households by above stated occupational income groups for year 1991. First column of this table presents the occupational categories, second column shows the per capita income of rural households in each of the occupational categories where income includes all income (i.e., income from both major and secondary occupations). Third column provides us with the number of households in each income group. Fourth column provides us with the poverty rates in each of the income groups.

Average per capita income, Tk. 6531, is the lowest among the households in agriculture as broad category. This lowest income goes in line with the highest poverty rate of 54 percent in this income group. Non-agricultural households with an average per capita income of Tk. 6797 go with the slightly lower poverty rate of 53 percent in 1991. Remittance earners with an average per capita income of Tk. 7724 goes well with 42 percent poverty rate in this year. Among agricultural households, category wages and salary has the lowest per capita income of Tk. 4920 along with the highest 74 percent poverty rate in this year.

Table 4a. Breakdown of households into income groups,1991

Income from	Per capita income	# of hh	Poverty Rate
1. Agriculture: farming and agricultural wages & salary	6531	2229	54
1a. Farming	7426	1433	43
1b. Wages & Salary	4920	796	74
2. Nonagricultural income	6797	960	53
2a. Non-agricultural Wage	6711	420	56
2b. Non-agricultural Salary		.	.
2c. Non-farm Enterprise	6863	540	51
3. Remittances and Transfers	7724	402	42
3a. Foreign Remittances	7724	402	42
3b. Tranfers (+ domestic remittances)		.	.
4. Other Income	6994	249	48
4a. Rent from Land	11548	16	25
4b. Return to Other Assets		.	.
4c. Others	6682	233	50
Total as weighted average	6753	3840	52

Rent from land enjoys the highest per capita income, Tk. 11548, with the lowest poverty rate of 25 percent. However, the number of households belong to this group is not many.

Table 4b. Breakdown of households into income groups,1995

Income from	Per capita income	# of hh	Poverty Rate
1. Agriculture: farming and agricultural wages & salary	7029	2669	63
1a. Farming	8036	1602	51
1b. Wages & Salary	5518	1067	80
2. Nonagricultural income	8008	1727	53
2a. Non-agricultural Wage	7844	941	57
2b. Non-agricultural Salary		.	.
2c. Non-farm Enterprise	8205	786	48
3. Remittances and Transfers	12283	349	36
3a. Foreign Remittances	12283	349	36
3b. Tranfers (+ domestic remittances)		.	.
4. Other Income	7598	295	65
4a. Rent from Land	11844	24	29
4b. Return to Other Assets		.	.
4c. Others	7222	271	68
Total as weighted average	7,762	5040	58

Table 4b presents the households by above stated occupational income groups for year 1995. Obviously, average poverty rate increased from 52 percent in 1991 to 58 percent in 1995. It

increased for agriculture and other income groups whereas it decreased for remittances and transfers group even though it remained the same for non-agriculture.

Table 4c. Breakdown of households into income groups, 2000			
Income from	Per capita income	# of hh	Poverty rate
1. Agriculture: farming and agricultural wages & salary	8714	2308	58
1a. Farming	10770	1265	43
1b. Wages & Salary	6221	1043	77
2. Nonagricultural income	13403	2919	36
2a. Non-agricultural Wage	10940	623	39
2b. Non-agricultural Salary	13419	1102	36
2c. Non-farm Enterprise	14673	1194	33
3. Remittances and Transfers	16052	531	33
3a. Foreign Remittances	21949	277	13
3b. Tranfers (+ domestic remittances)	9621	254	54
4. Other Income	13982	535	45
4a. Rent from Land	13001	75	44
4b. Return to Other Assets	24981	87	18
4c. Others	11614	373	52
Total as weighted average	11956	6293	45

Interestingly, average poverty rate decreased from 58 percent in 1995 to 45 percent in 2000. Poverty rate decreased for all the broad and subcategories except for rent from land category. Poverty rate decreased by 4.3 percentage points for agriculture whereas it decreased by 18 percentage points for non-agriculture. Non-agricultural households with an average per capita income of Tk. 13403 goes reasonably well with the 36 percent of poverty rate in 2000. Almost 50 percent higher per capita annual income along with close to 40 percent lower poverty rate than agriculture confirms the non-agriculture driven poverty reduction in earlier 5 years. Poverty rate decreased 23 percentage points for remittances which is the largest decrease among all.

Table 4d. Breakdown of households into income groups,2005

Income from	Per capita income	# of hh	Poverty rate
1. Agriculture: farming and agricultural wages & salary	11997	2776	54
1a. Farming	14223	1529	43
1b. Wages & Salary	9267	1247	66
2. Nonagricultural income	16074	2652	39
2a. Non-agricultural Wage	10591	1005	57
2b. Non-agricultural Salary	20898	772	20
2c. Non-farm Enterprise	18074	877	37
3. Remittances and Transfers	22154	549	29
3a. Foreign Remittances	28848	318	12
3b. Tranfers (+ domestic remittances)	12939	231	52
4. Other Income	19901	419	39
4a. Rent from Land	18113	86	47
4b. Return to Other Assets	16525	25	24
4c. Others	20674	308	39
Total as weighted average	15,077	6,396	45

Poverty rate remained the same 45 percent with no change from year 2000. Poverty rate decreased for agriculture but it increased for non-agriculture. Average per capita income of Tk. 11997 is the lowest among the agricultural households in 2005. Again this lowest income goes in line with the highest poverty rate of 54 percent in agriculture. A substantially higher average per capita income of Tk. 16074 for non-agricultural households than agriculture goes reasonably well with the 39 percent poverty rate of non-agriculture in 2005. Poverty decreased for both remittances and transfers and other income categories.

Table 4e. Breakdown of households into income groups, 2010

Income from	Per capita income	# of hh	Poverty Rate
1. Agriculture: farming and agricultural wages & salary	22408	3014	56
1a. Farming	27373	1723	46
1b. Wages & Salary	15778	1291	69
2. Nonagricultural income	25269	3197	46
2a. Non-agricultural Wage	18345	1260	59
2b. Non-agricultural Salary	31214	875	33
2c. Non-farm Enterprise	28536	1064	42
3. Remittances and Transfers	43536	930	31
3a. Foreign Remittances	53099	615	18
3b. Transfers (+ domestic remittances)	24864	315	57
4. Other Income	30394	690	49
4a. Rent from Land	27492	127	45
4b. Return to Other Assets	59374	34	21
4c. Others	29228	529	52
Total as weighted average	26789	7831	48

Overall poverty rate increased slightly from 45 percent in 2005 to 48 percent in 2010. Poverty rate increased for both agriculture and non-agriculture. Average per capita income of agriculture increased from Tk. 11997 in 2005 to Tk. 22408 in 2010. But still the agriculture poverty rate goes up from 54 percent in 2005 to 56 percent in 2010. Similarly, a substantially higher average per capita income of Tk. 25269 for non-agricultural households goes with a 46 percent poverty rate than the 39 percent poverty rate in 2005. The highest average per capita income of Tk. 43536 for remittances and transfers reflects a 31 percent poverty rate which is slightly higher than the 29 percent poverty rate of 2005.

3.2 Poverty dynamics and the shift in occupations over time

We have discussed average per capita income and associated poverty rates of different income/occupation groups across years in last sub-section. We need to look into if there is a significant change in the proportions of households in different income groups over that period to better understand occupation based poverty dynamics.

Chart 7: Proportions of households in broad categories, 1991

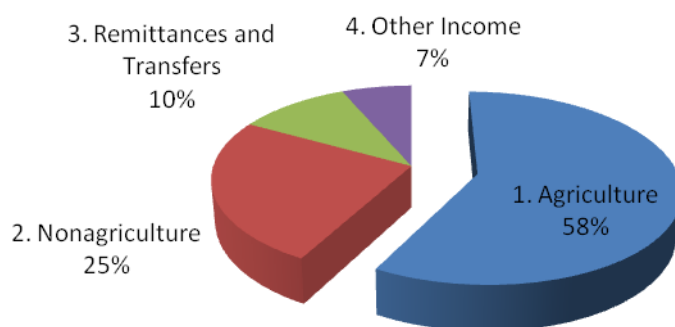
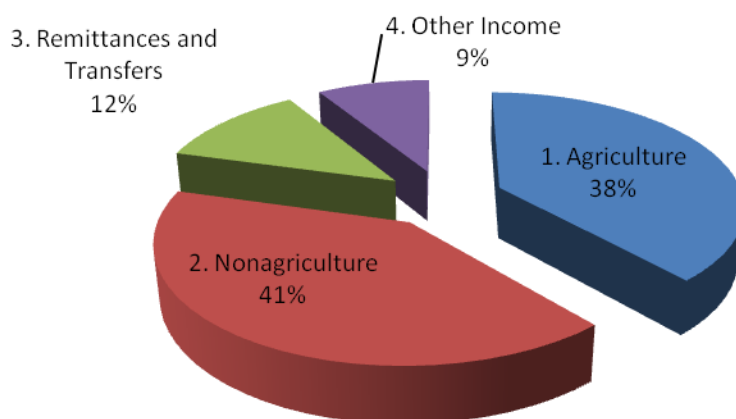


Chart 7 shows the proportion of rural households in each broad occupational category in 1991. Agriculture dominates the pie chart with 58 percent (37 percent farming and 21 percent wages and salary) of the rural households showing their occupation as agriculture. Of the surveyed households, 25 percent show non-agriculture as their major occupation. Remittances and transfers account for the livelihood of the 10 percent of the households in 1991.

Chart 8: Proportions of households in broad categories, 2010



Proportions of the broad income groups in 2010 are presented in chart 8. Agriculture and non-agriculture account for 79 percent of the households in 2010 with agriculture representing 38 percent of the households and non-agriculture representing 41 percent of the households.

There is an increase in the share of nonagricultural households from 25 percent in 1991 to 41 percent in 2010 along with a decrease in agriculture's share from 58 percent in 1991 to 38 percent in 2010. However, the shares of remittances and transfers and other income increased slightly from 10 and 7 percent in 1991 to 12 and 9 percent in 2010, respectively.

Year	1991		1995		2000		2005		2010	
	Prop.	P. Rate	Prop.	P. Rate	Prop.	P. Rate	Prop.	P. Rate	Prop.	P. Rate
1. Agriculture: farming and wages & salary	0.58	54	0.53	63	0.37	58	0.43	54	0.38	56
1a. Farming	0.37	43	0.32	51	0.20	43	0.24	43	0.22	46
1b. Wages & Salary	0.21	74	0.21	80	0.17	77	0.19	66	0.16	69
2. Non-agriculture	0.25	53	0.34	53	0.46	36	0.41	39	0.41	46
3. Remittances and Transfers	0.10	42	0.07	36	0.08	33	0.09	29	0.12	31
4. Other Income	0.06	48	0.06	65	0.09	45	0.07	39	0.09	49

The share of rural households in farming declined from 37 percent in 1991 to 22 percent in 2010 while that share of wages and salary declined from 21 percent in 1991 to 16 percent in 2010. Table 5a presents the change of occupational proportions and poverty rates in different survey years over the 1991-2010 periods. Poverty rates in agriculture fluctuated between 54 to 63 percent during that period. The proportion of agricultural households declined one thirds over that period even though the poverty rate remained almost the same. On the other hand, the proportion of nonagricultural households increased substantially along with a significant decrease in poverty rate among them.

Table 5b: Proportion households in each occupational categories across quintiles

		1991-92	1995-96	2000	2005	2010		1991-92	1995-96	2000	2005	2010
Occupational Category	Q1						Q4					
1. Agriculture		0.59	0.62	0.53	0.56	0.47		0.54	0.49	0.28	0.38	0.34
1a. Farming		0.21	0.24	0.22	0.22	0.23		0.42	0.36	0.22	0.25	0.23
1b. Wages & Salary		0.38	0.38	0.32	0.34	0.24		0.11	0.13	0.06	0.12	0.11
2. Nonagriculture		0.27	0.28	0.28	0.30	0.33		0.26	0.39	0.55	0.47	0.46
	Q2						Q5					
		0.61	0.57	0.46	0.51	0.44		0.54	0.42	0.18	0.28	0.28
		0.34	0.28	0.18	0.24	0.19		0.46	0.36	0.17	0.24	0.25
		0.27	0.28	0.28	0.27	0.25		0.08	0.06	0.01	0.04	0.03
		0.26	0.33	0.42	0.41	0.42		0.24	0.37	0.57	0.45	0.37
	Q3											
		0.62	0.54	0.37	0.44	0.39						
		0.42	0.34	0.21	0.24	0.20						
		0.19	0.20	0.16	0.20	0.20						
		0.22	0.35	0.49	0.44	0.47						

It is interesting to see a decline in the proportion of households in agriculture during 1991-2000 along with an increase in the proportion of non-agricultural households during that period. The opposite trend is observed for the 2000-2010 periods. Shift in these proportions is counterintuitive.

3.3 Changes in the nonfarm sources of income of the agricultural group

We have special interest in the poverty and income of the agricultural occupation group. The standard hypothesis is that nonfarm sources of income of the agricultural group have increased over time. This has contributed to the income increase in agricultural group as well as decline in their poverty rate. We could not prove that poverty rate in agricultural group had decline substantially over time. Still we intend to test here if nonfarm sources of income of the agricultural group had increased over time. If not, then we cannot reject the standard hypothesis regarding the surge in nonfarm sources of income of the agricultural group behind the poverty reduction in agricultural group.

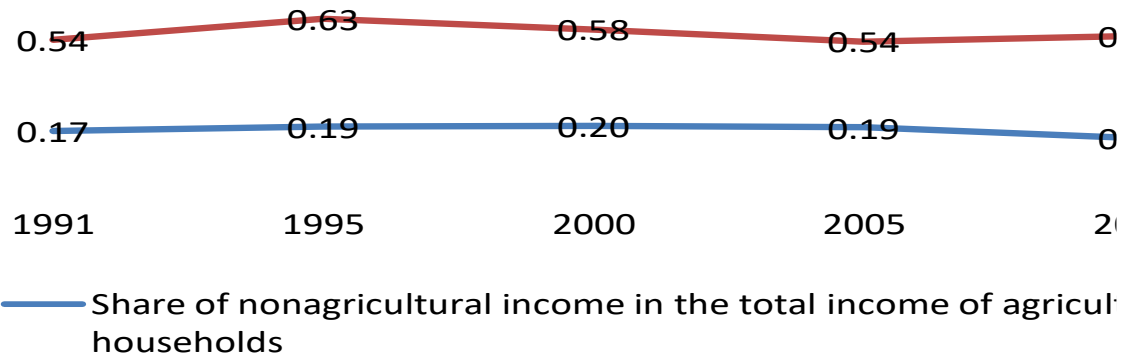
We have prepared the following tables which show only two occupational categories, i.e. (a) Agriculture (as defined above) and (b) Non-agriculture (the rest of occupations). Table 6a presents the shares of nonagricultural income in agricultural group across years. Column “Ratio” of this table shows the ratio of non-agricultural income in agricultural group to total income of agricultural group except for bottom row. For bottom row of this table, Ratio shows the ratio of non-agricultural income from major source of non-agriculture to the total income of non-agricultural group which includes both nonagricultural and agricultural incomes. If this Ratio takes the value of 1.0 it will indicate zero income from agricultural sources for non-agricultural households.

Table 6a: Ratio of non-agricultural income in agricultural and non-agricultural group

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.17	0.54	0.19	0.63	0.20	0.58	0.19	0.54	0.15	0.56
Farming	0.19	0.43	0.22	0.51	0.22	0.43	0.21	0.43	0.14	0.46
Wages & Salary	0.16	0.74	0.16	0.80	0.17	0.77	0.16	0.66	0.16	0.69
Nonagriculture	0.85	0.53	0.85	0.53	0.92	0.36	0.90	0.39	0.89	0.44

The share of nonagricultural income in the total income of agricultural households increased from 17 percent in 1991 to 19 percent in 1995 to 20 percent in 2000. Thereafter it declined to 19 percent in 2005 and then it declined to 15 percent in 2010. No obvious link between this ratio and the poverty rates across years does exist (Chart 9).

Chart 9: Share of nonagricultural income in the total income of agricultural households and poverty rate



Similar pattern is observed for sub-sectors of agriculture and for non-agricultural households. The share of nonagricultural income in total agricultural income of each quintile over the years showed an increase initially and a decline thereafter. Again no deterministic relationship between the share of nonagricultural income in total agricultural income and the poverty rates across years was found (Please see Tables 6b - 6f in Appendix).

3.1

4. Decomposition of the overall rate of growth of per capita income

4.1 Decomposition of the overall rate of growth of per capita income

We have obtained the shares of households in each occupation under each year and under each quintile. In case of sector based analysis as performed in section 2, since total income of a

sector was divided by the total number of rural households to obtain per capita income of a sector, sectoral weight was not relevant. But weight is relevant for this occupational analysis. Growth calculation involves 2 years with two different set of the weights (i.e. the shares of households in each occupation or income group). Thus, we need to use both set of the shares of households in case of measuring group-wise or occupation-wise contributions to overall per capita growth and quintile-wise growth. The overall rate of growth of per capita income is to be the weighted average of the rate of growth of income of each occupation or income group. Thus we need to incorporate occupational weights of both the years in case of decomposing the rate of growth of per capita income. The following formulation shows us how to do it.

Let X_i denote total income of year i , N_i denote total number of households in year i , h_i denote the average size of the households in year i , X_{ij} denote the total income of year i in sector j , n_{ij} denote the total number of households of occupation (sector) j in year i , x_{ij} denote the average per capita income of a household of occupation j in year i , $w_{ij} (= n_{ij} / N_i)$ denote the proportion of households in occupation (sector) j in year i . Growth in per capita income can be written as

$$Growth = \left(\frac{X_2}{h_2 N_2} - \frac{X_1}{h_1 N_1} \right) / \frac{X_1}{h_1 N_1}.$$

Assuming $h_1 = h_2$ and decomposing total income into sectors/occupations/income groups (formulation is laid down for only 2 sectors/occupations/ income groups) we can obtain,

$$\begin{aligned} Growth &= \left(\frac{X_{21} + X_{22}}{N_2} - \frac{X_{11} + X_{12}}{N_1} \right) / \frac{X_{11} + X_{12}}{N_1} \\ &= \left(\frac{n_{21} x_{21} + n_{22} x_{22}}{N_2} - \frac{n_{11} x_{11} + n_{12} x_{12}}{N_1} \right) / \frac{n_{11} x_{11} + n_{12} x_{12}}{N_1} \\ &= \frac{w_{21} x_{21} + w_{22} x_{22} - (w_{11} x_{11} + w_{12} x_{12})}{w_{11} x_{11} + w_{12} x_{12}} \\ &= \frac{(w_{21} x_{21} - w_{11} x_{11}) + (w_{22} x_{22} - w_{12} x_{12})}{w_{11} x_{11} + w_{12} x_{12}} \end{aligned}$$

$$= \frac{\sum_{j=1}^2 (w_{2j}x_{2j} - w_{1j}x_{1j})}{\sum_{j=1}^2 w_{1j}x_{1j}}$$

For $w_{1j} = w_{2j} = w_j$, we can write growth as $Growth = \frac{\sum_{j=1}^2 w_j(x_{2j} - x_{1j})}{\sum_{j=1}^2 w_jx_{1j}}$ which will allow us to

write the overall rate of growth of per capita income as the weighted average of the rate of growth of per capita income of each occupation group as a percentage of overall per capita income of base year 1. Both occupational and sectoral income weights will be needed for this. It can be applied for each quintile too. Due to the substantial differences in w_{ij} 's we have applied the standard formulae in case of our calculation presented in the following table.

The rate of growth of per capita income of occupation group j is $\frac{x_{2j} - x_{1j}}{x_{1j}}$. The weighted

average of the rate of growth of per capita income of each occupation group cannot represent the overall rate of growth of per capita income of base year 1 as described. The contribution of occupation j in the growth of overall per capita income equals $\frac{w_{2j}x_{2j} - w_{1j}x_{1j}}{\sum_{j=1}^2 w_{1j}x_{1j}}$. The summation

of the contribution over all j would be the overall rate of growth of per capita income of base year 1 which has already been derived above.

4.2 Decomposition results

4.2.1 Year wise decomposition

Table 7a presents the decomposition of per capita real income growth into occupation groups. Columns 2, 3, 4 and 5 of this table show the contributions of each of the occupations to the overall per capita real income growth for respective years. Columns 7, 8 and 9 present decomposition for the periods 1991-2000, 2000-2010 and 1991-2010. (Please see Table 7b in Appendix for per capita real income across occupations and years).

Table 7a: Decomposition of per capita real income growth of rural households

Income from	1991-95	1995-2000	2000-05	2005-10	1991-2000	2000-2010	1991-2010
1. Agriculture	-0.12	-0.15	0.07	0.04	-0.26	0.11	-0.14
1a. Farming	-0.11	-0.11	0.04	0.04	-0.21	0.08	-0.12
1b. Wages & Salary	-0.01	-0.05	0.03	0.00	-0.05	0.03	-0.02
2. Nonagriculture	0.08	0.28	-0.09	0.02	0.33	-0.07	0.25
2a. Non-agricultural Wage	0.07	-0.08	0.02	0.02	-0.01	0.04	0.04
2b. Non-agricultural Salary	0.00	0.24	-0.03	-0.01	0.22	-0.04	0.17
2c. Non-farm Enterprise	0.01	0.12	-0.07	0.01	0.12	-0.06	0.05
3. Remittances and Transfers	-0.02	0.03	0.01	0.11	0.01	0.11	0.13
3a. Foreign Remittances	-0.02	-0.01	0.01	0.09	-0.03	0.10	0.08
Transfers (+ domestic remittances)	0.00	0.04	0.00	0.01	0.04	0.01	0.05
4. Other Income	-0.01	0.06	-0.02	0.03	0.04	0.02	0.06
4a. Rent from Land	0.00	0.01	0.00	0.00	0.01	0.01	0.01
4b. Return to Other Assets	0.00	0.03	-0.02	0.01	0.03	-0.02	0.01
4c. Others	-0.01	0.02	0.01	0.02	0.00	0.03	0.04
Total (1+2+3+4)	-0.07	0.21	-0.03	0.20	0.12	0.17	0.31

It is obvious from this table that the relative contributions of agriculture to overall annual per capita real income growth were -12 and -15 percentage points for the periods 1991-1995 and 1995-2000, respectively. Non-agriculture plays the strongest role with its relative contribution of 8 and 28 percentage points for the periods 1991-1995 and 1995-2000, respectively. If we decompose the said growth over the 1991-2000 periods then we observe 33 percentage points of contribution from non-agriculture whereas it was -26 percentage points from agriculture.

To the contrary, the relative contributions of agriculture to overall annual per capita real income growth were 7 and 4 percentage points for the periods 2000-2005 and 2005-2010, respectively. In this case, non-agriculture's relative contributions were -9 and 2 percentage points for the periods 2000-2005 and 2005-2010, respectively. If we decompose the said growth over the 2000-2010 periods then we observe 11 percentage points of contribution from agriculture whereas it was -7 percentage points from non-agriculture. Of that 11 percentage points, 8 percentage points from farming and the rest 3 percentage points from wages and salary. Remittances and transfers also showed up strongly during 2005-2010 periods with 11 percentage points of contribution to overall 17 percent growth.

If we consider the 20 years periods from 1991 to 2010 then we observe an overall income growth of 31 percent, 25 percentage points is explained by non-agriculture while -14 percentage points from agriculture. The most interesting feature from real income growth decomposition is that agriculture is playing a relatively stronger role than non-agriculture in recent time. Income from farming plays a relatively stronger role than income from wages and salary.

4.2.2 Quintile wise decomposition

As shown in Table 8a, per capita real income of quintile 1 decline 7 percent over 1991-95 with agriculture and non-agriculture both experiencing 1 percentage point decline each. Even though farming showed a slight increase but 2 percentage points decline of wages and salary pull down agriculture by 1 percentage point. Remittances and transfers decline by 2 percentage points.

Table 8a: Decomposition of per capita real income growth of rural households - quintile 1

Income from	1991			1995			1991-95
	x	w	wx	x	w	wx	g
1. Agriculture: farming and agricultural wages & salary	2822	0.59	1672	2618	0.62	1631	-0.01
1a. Farming	2852	0.21	613	2606	0.24	621	0.00
1b. Wages & Salary	2805	0.38	1059	2626	0.38	1011	-0.02
2. Nonagricultural income	2887	0.27	774	2678	0.28	741	-0.01
2a. Non-agricultural Wage	2734	0.13	363	2655	0.18	485	0.04
2b. Non-agricultural Salary	.	0.00	.	.	0.00	.	.
2c. Non-farm Enterprise	3037	0.14	411	2723	0.09	257	-0.05
3. Remittances and Transfers	2772	0.07	184	2554	0.05	117	-0.02
3a. Foreign Remittances	2772	0.07	184	2554	0.05	117	-0.02
3b. Tranfers (+ domestic remittances)	.	0.00	.	.	0.00	.	.
4. Other Income	2602	0.07	190	2544	0.05	139	-0.02
4a. Rent from Land	1800	0.00	5	2970	0.00	6	0.00
4b. Return to Other Assets	.	0.00	.	.	0.00	.	.
4c. Others	2632	0.07	185	2528	0.05	133	-0.02
Total (1+2+3+4)	2820		2820	2628		2628	-0.07

Table 8b presents decomposition of per capita real income growth for all quintiles over 1991-95. Contribution of agriculture declined more at upper quintiles except for positive at the top most quintile. Non-agriculture's contribution became positive and large at upper quintiles

except for negative at the top most quintile. Remittances and transfers showed even greater decline at upper quintiles except for 17 percentage points of growth contribution at the top most quintile. Above all, non-agriculture's dominant contribution to overall growth is well expressed.

Similar growth contribution from these income groups is expected for the 1995-2000 period. Agriculture's large negative contribution is obvious in Table 8c with a substantially large decline

Table 8b: Decomposition of per capita income growth into occupations - 1991-95

Income from	Q1	Q2	Q3	Q4	Q5	Overall
1. Agriculture: farming and agricultural Wages & Salary	-0.01	-0.10	-0.14	-0.10	0.08	-0.12
1a. Farming	0.00	-0.08	-0.12	-0.10	0.09	-0.11
1b. Wages & Salary	-0.02	-0.02	-0.02	0.01	-0.02	-0.01
2. Nonagricultural income	-0.01	0.04	0.08	0.08	-0.04	0.08
2a. Non-agricultural Wage	0.04	0.05	0.08	0.07	0.01	0.07
2b. Non-agricultural Salary	.	.	.	.	-0.04	0.00
2c. Non-farm Enterprise	-0.05	-0.01	0.00	0.02	-0.01	0.01
3. Remittances and Transfers	-0.02	-0.05	-0.06	-0.06	0.17	-0.02
3a. Foreign Remittances	-0.02	-0.05	-0.06	-0.06	0.15	-0.02
3b. Transfers (+ domestic remittances)	.	.	.	.	0.02	0.00
4. Other Income	-0.02	0.01	0.00	-0.03	0.04	-0.01
4a. Rent from Land	0.00	0.00	0.00	0.00	0.00	0.00
4b. Return to Other Assets	.	.	.	.	0.02	0.00
4c. Others	-0.02	0.01	0.00	-0.03	0.02	-0.01
Total (1+2+3+4)	-0.07	-0.10	-0.12	-0.11	0.24	-0.07

in all quintiles. Almost close to the overall decline of 12 percentage points of agricultural income in 1991-95, agriculture's overall contribution is -15 percent. As expected, non-agriculture's contribution to overall growth increased substantially to as high as 45 percentage points at quintile 5 even though it was -4 percentage points at quintile 1. The 28 percentage point contribution of non-agriculture to overall growth of 21 percent is the highest of all.

Table 8c: Decomposition of per capita income growth into occupations - 1995-2000

Income from	Q1	Q2	Q3	Q4	Q5	Overall
1. Agriculture: farming and agricultural Wages & Salary	-0.18	-0.11	-0.14	-0.17	-0.16	-0.15
1a. Farming	-0.08	-0.10	-0.11	-0.11	-0.12	-0.11
1b. Wages & Salary	-0.11	-0.01	-0.03	-0.06	-0.04	-0.05
2. Nonagricultural income	-0.04	0.09	0.18	0.25	0.45	0.28
2a. Non-agricultural Wage	-0.14	-0.09	-0.07	-0.03	-0.10	-0.08
2b. Non-agricultural Salary	.	.	.	.	.	0.24
2c. Non-farm Enterprise	0.00	0.01	0.06	0.06	0.23	0.12
3. Remittances and Transfers	0.00	0.01	0.04	0.05	0.03	0.03
3a. Foreign Remittances	-0.04	-0.02	-0.01	0.01	-0.01	-0.01
3b. Trfers (+ domestic remittances)	.	.	.	.	.	0.04
4. Other Income	0.02	-0.01	0.00	0.03	0.13	0.06
4a. Rent from Land	0.01	0.00	0.00	0.01	0.01	0.01
4b. Return to Other Assets	.	.	.	.	.	0.03
4c. Others	0.00	-0.01	-0.01	0.01	0.05	0.02
Total (1+2+3+4)	-0.21	-0.01	0.07	0.16	0.45	0.21

However, there is a reversal in the trend of non-agriculture dominant growth of the per capita real income of rural households. Agricultural income growth dominated the growth of the per capita real income of rural households since year 2000. As presented in Table 8d, per capita real income of agriculture grew at all quintiles over 2000-2005. It increased more at upper quintiles with relatively higher growth coming from farming than wages and salary. Farming contributed more at bottom quintiles than wages and salary. Thus, farming is expected to contribute more toward poverty reduction unless distribution is skewed. As described above, poverty rate for farming remained the same 43 percent in 2000 and 2005 with increased farming income seemingly leaving not much effect on poverty reduction over 2000-2005.

Non-agriculture's contribution to overall growth was -9 percent. Non-agriculture's contribution started declining from quintile 2. Remittances and transfers contributed only slightly toward the upper quintile.

Table 8d: Decomposition of per capita income growth into occupations: 2000-2005

Income from	Q1	Q2	Q3	Q4	Q5	Overall
1. Agriculture: farming and agricultural Wages & Salary	0.03	0.03	0.06	0.09	0.08	0.07
1a. Farming	0.02	0.05	0.02	0.03	0.05	0.04
1b. Wages & Salary	0.00	-0.02	0.04	0.06	0.03	0.03
2. Nonagricultural income	0.01	-0.03	-0.06	-0.09	-0.12	-0.09
2a. Non-agricultural Wage	0.13	0.11	0.07	0.01	-0.03	0.02
2b. Non-agricultural Salary	-0.09	-0.11	-0.07	-0.03	0.00	-0.03
2c. Non-farm Enterprise	-0.03	-0.04	-0.06	-0.07	-0.09	-0.07
3. Remittances and Transfers	0.01	-0.01	-0.01	-0.02	0.03	0.01
3a. Foreign Remittances	0.00	0.00	0.00	-0.01	0.03	0.01
3b. Transfers (+ domestic remittances)	0.01	-0.01	-0.01	0.00	0.00	0.00
4. Other Income	-0.04	-0.02	-0.02	0.00	-0.02	-0.02
4a. Rent from Land	0.00	0.01	0.00	0.00	0.00	0.00
4b. Return to Other Assets	0.00	0.00	-0.01	0.00	-0.05	-0.02
4c. Others	-0.04	-0.03	-0.01	0.00	0.03	0.01
Total (1+2+3+4)	0.01	-0.04	-0.03	-0.02	-0.03	-0.03

It is interesting to notice that even though agriculture's contribution to overall growth is twice of non-agriculture, non-agriculture grew substantially more at bottom quintiles than agriculture over 2005-2010 (Table 8e). Agriculture's contribution to overall quintile 1's growth of 18 percent is -2 percentage points whereas non-agriculture's corresponding contribution is 10 percentage points. Agriculture's contribution to overall quintile 2's growth of 15 percent is zero whereas non-agriculture's corresponding contribution is 7 percentage points. For quintile 3, agriculture's contribution to overall growth of 16 percent is 1 percent against non-agriculture's 10 percentage points. Strong 9 percentage point contribution from farming came at quintile 5 with almost no relevance to rural poverty reduction.

Table 8e: Decomposition of per capita income growth into occupations: 2005-2010

Income from	Q1	Q2	Q3	Q4	Q5	Overall
1. Agriculture: farming and agricultural Wages & Salary	-0.02	0.00	0.01	0.02	0.08	0.04
1a. Farming	0.03	-0.02	-0.02	0.01	0.09	0.04
1b. Wages & Salary	-0.05	0.02	0.03	0.01	-0.02	0.00
2. Nonagricultural income	0.10	0.07	0.10	0.07	-0.04	0.02
2a. Non-agricultural Wage	0.03	0.02	0.06	0.03	0.01	0.02
2b. Non-agricultural Salary	0.04	0.03	0.02	0.01	-0.04	-0.01
2c. Non-farm Enterprise	0.03	0.02	0.02	0.03	-0.01	0.01
3. Remittances and Transfers	0.02	0.04	0.02	0.08	0.17	0.11
3a. Foreign Remittances	0.02	0.02	0.01	0.07	0.15	0.09
3b. Transfers (+ domestic remittances)	0.00	0.02	0.01	0.01	0.02	0.01
4. Other Income	0.08	0.04	0.03	0.01	0.04	0.03
4a. Rent from Land	0.01	0.01	0.01	0.00	0.00	0.00
4b. Return to Other Assets	0.00	0.00	0.00	0.00	0.02	0.01
4c. Others	0.07	0.03	0.02	0.01	0.02	0.02
Total (1+2+3+4)	0.18	0.15	0.16	0.18	0.24	0.20

Therefore, even though non-agriculture's contribution to overall growth was half of agriculture non-agriculture's greater contribution toward bottom quintiles are expected to contribute more to poverty reduction than agriculture. But the poverty rate for non-agriculture increased from 36 percent in 2000 to 39 percent in 2005 and 46 percent in 2010. These let us to conclude that even higher growth at bottom quintiles are not helping much to lower poverty rates in rural households. May be, relatively affluent at the bottom quintiles are growing fast. Obviously, this is not the case for remittances and transfer earners.

4.3 Relative efficiency, real wages, unskilled labor demand

4.3.1 Dynamics of relative efficiency of agriculture and non-agriculture

As already argued in several subsections above, agriculture grew slowly whereas non-agriculture grew fast during 1991-2000. To the contrary, agriculture grew fast whereas non-agriculture grew slowly during 2000-2010. We can link this growth with efficiency in these sectors. If we put proportion of rural households in agricultural group next to contribution of agriculture to total rural per capita income then we get interesting results.

When the contribution of agriculture was 53 percent in 1991-92 the proportion of rural households in agriculture was 58 percent (from Table 1a & 5a). For making 1 percent contribution to rural household income, agriculture required 1.094 percent of rural households in agricultural group. Contribution of agriculture went down from 53 percent in 1991-92 to 34 percent in 2010 with agriculture requiring 38 percent of the rural households (from Table 1a & 5a). For making 1 percent contribution to rural per capita income in 2010, agriculture required 1.118 percent of rural households in agriculture which is .023 percentage points or 2.1 percent more than 1991.

Table 9a: % of rural households required for 1 percent of rural income gain					
Category	1991	1995	2000	2005	2010
Agriculture	1.09	1.15	1.42	1.30	1.12
Nonagriculture	1.09	1.10	0.98	1.03	1.17
Contr/nonagri-agri	0.17	0.19	0.20	0.19	0.15
Contr/agri-nonagri	0.15	0.15	0.08	0.10	0.11

Table 9a presents the percent of households required for making 1 percent contribution to overall rural per capita income by different sectors. This table also presents the share of nonagricultural income in the total income of agricultural households and also the share of agricultural income in the total income of nonagricultural households. The share of nonagricultural income in the total income of agricultural households did not fluctuate much from its 20 years average of 18 percent. Similarly, the share of agricultural income in the total income of nonagricultural households did not fluctuate much from its 20 years average of 12 percent.

Everything else remain the same, part of the higher growth in agricultural group over 2000-2010 may be explained by this relative efficiency enhancement in agricultural sector. Efficiency was the lowest in 2000 which is agriculture requiring 1.42 percent of rural households in making 1 percent contribution to rural per capita income. Thereafter, efficiency enhanced gradually requiring 1.12 percent of rural households in making 1 percent contribution to rural per capita income in 2010.

It is clear from Table 9a that agricultural efficiency decreased over 1991-2000 and it increased thereafter. It appeared that the efficiency enhancement was realized more at upper quintiles leaving a relatively smaller effect on poverty reduction.

4.3.2 Real wages and unskilled labor demand on poverty reduction

Separate efficiency estimates for farming and wages and salary are presented in Table 9b. For making 1 percent contribution to rural household income, farming required 0.93 percent of rural households in 1991 than requiring 0.85 percent of rural households in 2010 which went up to 1.11 percent in 2000. If we juxtapose this relative efficiency rise of farming with its 7 percentage points contribution to 17 percent growth of rural overall per capita real income over 2000-2010 (Table 7a) along with poverty rate over that period then the proposition that enhanced farming efficiency got realized at upper quintiles leaving little or no effect on poverty reduction cannot be rejected.

Category	1991	1995	2000	2005	2010
Farming	0.93	0.94	1.11	1.09	0.85
Wages and Salary	1.62	1.75	2.13	1.90	2.00

For making 1 percent contribution to rural household income, wages and salary required 1.62 percent of rural households in 1991 than requiring 2.0 percent of rural households in 2010 which went up to 2.13 percent in 2000. This implies fall in its relative efficiency over time. Since the contribution of agriculture came down from 53 percent in 1991-92 to 34 percent in 2010 with the rest increased from 47 in 1991-92 to 66 percent in 2010, relative efficiency of agricultural wage earners was expected to rise at the margin because of 36 percent contraction of agriculture. It did not happen due to 40 percent expansion of the rest of the rural sectors. It might have pulled better skilled labor from agriculture leaving mostly unskilled there.

If we juxtapose this relative efficiency fall of wages and salary with its 3 percentage points contribution to 17 percent growth of rural overall per capita real income over 2000-2010 (Table

7a) then increases in the real wages of rural households over that period cannot be rejected. This may provide credence to a weak link between increases in real rural wages and poverty reduction in rural households. But this fall in relative efficiency of wages and salary can at the same time accept the proposition that rural poverty reduction was partly (not mainly) driven by increases in the demand for unskilled workers in rural households.

4.3.3 Major limitation of occupation based analysis

The problem with this occupation based analysis on non-panel data is that we cannot focus on the shifting of occupations over time. We just look at the major share of income of a household in case of classifying them. We cannot capture occupational shifting in this process. Share of nonagricultural income in agriculture is much less increased may be due to the fact that many of such agricultural households are counted as non-agricultural households because of their higher income share from non-agriculture. Otherwise, the significant increase in total non-agricultural income is expected to be reflected either in per capita income growth of non-agriculture or a greater share of nonagricultural income in agriculture or both. This may be one of the main reasons why we see a decline in the proportion of households in agriculture during 1991-2000 along with an increase in the proportion of non-agricultural households during the same period. The reverse happened during the 2000-2010 periods with an increase in the proportion of households in agriculture along with a decrease in the proportion of non-agricultural households. This makes occupation based analysis difficult when it is done not based on same cohort of households.

5. Summary of Findings

- The growth of agricultural income has made the major contribution to the income of rural households during 2000-2010 but it is the growth of nonagricultural income which has made the major contribution to the income of rural households during the periods

of 1991-2000. However, dominance lies with non-agriculture if we consider entire 1991-2010 period.

- The standard hypothesis that nonfarm sources of income of the agricultural group have increased over time contributing to the income increase in agricultural group as well as decline in their poverty rate has been proved wrong. No obvious link between the share of nonagricultural income in the total income of agricultural households and the poverty rates in agricultural households across years does exist. Again no deterministic relationship between the share of nonagricultural income in total agricultural income of each quintile and the poverty rates across years was found.
- If we consider the 20 years periods from 1991 to 2010 then we observe an overall income growth of 31 percent, 25 percentage points is explained by non-agriculture while -14 percentage points from agriculture. The most interesting feature from real income growth decomposition is that agriculture is playing a relatively stronger role than non-agriculture in recent time. Income from farming plays a relatively stronger role than income from wages and salary.
- Even though non-agriculture's contribution to overall growth was half of agriculture non-agriculture's greater contribution toward bottom quintiles over 2000-2010 are expected to contribute more to poverty reduction than agriculture. But the increased poverty rate for non-agriculture over that period let us conclude that even higher growth at bottom quintiles are not helping much to lower poverty rates in rural households. May be, relatively affluent at the bottom quintiles are growing fast. Obviously, this is not the case for remittances and transfer earners.
- Everything else remain the same, part of the higher growth in agricultural group over 2000-2010 may be explained by the relative efficiency enhancement in agricultural sector. Efficiency was the lowest in 2000 which is agriculture requiring 1.42 percent of rural households in making 1 percent contribution to rural per capita income.

Thereafter, efficiency enhanced gradually requiring 1.12 percent of rural households in making 1 percent contribution to rural per capita income in 2010. It appeared that the efficiency enhancement was realized more at upper quintiles leaving a relatively smaller effect on poverty reduction

- For making 1 percent contribution to rural household income, wages and salary required 1.62 percent of rural households in 1991 than requiring 2.0 percent of rural households in 2010 which went up to 2.13 percent in 2000. This implies fall in its relative efficiency over time.

Since the contribution of agriculture came down from 53 percent in 1991-92 to 34 percent in 2010 with the rest increased from 47 in 1991-92 to 66 percent in 2010, relative efficiency of agricultural wage earners was expected to rise at the margin because of 36 percent contraction of agriculture. It did not happen due to 40 percent expansion of the rest of the rural sectors. It might have pulled better skilled labor from agriculture leaving mostly unskilled there.

- If we juxtapose the relative efficiency fall of wages and salary with its 3 percentage point contribution to 17 percent growth of rural overall per capita real income over 2000-2010 then increases in the real wages of rural households over that period cannot be rejected. This may provide credence to a weak link between increases in real rural wages and poverty reduction in rural households. But this fall in relative efficiency of wages and salary can at the same time accept the proposition that rural poverty reduction was partly (not mainly) driven by increases in the demand for unskilled workers in rural households.

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Appendix:

Table 1b. Breakdown of Per Capita Annual Income of Rural Household into Sectors (Real, base year-1991-92)

Income from	1991-92		1995-96		2000		2005		2010	
	PC Income	As %	PC Income	As %	PC Income	As %	PC Income	As %	PC Income	As %
1. Agriculture: farming and agricultural Wages & Salary	3558	53	2862	46	1942	26	2396	33	3014	34
1a. Farming	2698	40	2103	34	1348	18	1653	22	2270	26
1b. Wages & Salary	860	13	759	12	594	8	743	10	744	8
2. Nonagricultural income	1564	23	1932	31	3528	47	2936	40	3054	35
2a. Non-agricultural Wage	676	10	1003	16	634	8	732	10	840	9
2b. Non-agricultural Salary		0	0	0	1310	17	1078	15	1008	11
2c. Non-farm Enterprise	888	13	930	15	1584	21	1125	15	1206	14
3. Remittances and Transfers	755	11	655	10	919	12	1016	14	1775	20
3a. Foreign Remittances	755	11	655	10	546	7	641	9	1311	15
3b. Transfers (+ domestic remittances)		0	0	0	373	5	375	5	463	5
4. Other Income	876	13	811	13	1194	16	1005	14	998	11
4a. Rent from Land	61	1	73	1	214	3	241	3	228	3
4b. Return to Other Assets		0	0	0	290	4	53	1	98	1
4c. Others	815	12	738	12	690	9	710	10	672	8
Total (1+2+3+4)	6753	100	6260	100	7584	100	7353	100	8840	100

Table 1e. Breakdown of per capita annual income into Sectors (Current prices) - quintile 3

Income from	1991		1995		2000		2005		2010	
	PCI	As %	PCI	As %	PCI	As %	PCI	As %	PCI	As %
1. Agriculture: farming and agricultural wages & salary	3282	0.57	3188	0.51	2932	0.34	4499	0.42	7507	0.40
1a. Farming	2361	0.41	2146	0.34	1718	0.20	2708	0.25	4448	0.24
1b. Wages & Salary	921	0.16	1042	0.17	1215	0.14	1790	0.17	3059	0.16
2. Nonagricultural income	1214	0.21	1970	0.31	3732	0.44	4175	0.39	7293	0.39
2a. Non-agricultural Wage	424	0.07	1024	0.16	849	0.10	1770	0.16	3210	0.17
2b. Non-agricultural Salary		0.00		0.00	1364	0.16	999	0.09	1689	0.09
2c. Non-farm Enterprise	790	0.14	946	0.15	1519	0.18	1406	0.13	2394	0.13
3. Remittances and Transfers	590	0.10	353	0.06	780	0.09	955	0.09	1849	0.10
3a. Foreign Remittances	590	0.10	353	0.06	271	0.03	340	0.03	822	0.04
3b. Transfers (+ domestic remittances)		0.00		0.00	509	0.06	616	0.06	1027	0.06
4. Other Income	680	0.12	800	0.13	1107	0.13	1176	0.11	1906	0.10
4a. Rent from Land	31	0.01	49	0.01	171	0.02	202	0.02	340	0.02
4b. Return to Other Assets		0.00		0.00	104	0.01	44	0.00	82	0.00
4c. Others	649	0.11	751	0.12	833	0.10	930	0.09	1484	0.08
Total (1+2+3+4)	5766		6310		8552		10806		18555	
N	768		1008		1262		1279		1566	

Table 1f. Breakdown of per capita annual income into Sectors (Current prices) - quintile 4

Income from	1991		1995		2000		2005		2010	
	PCI	As %	PCI	As %	PCI	As %	PCI	As %	PCI	As %
1. Agriculture: farming and agricultural wages & salary	3857	0.51	3890	0.46	3348	0.27	5597	0.36	9666	0.35
1a. Farming	3143	0.41	2977	0.35	2623	0.21	3937	0.25	7083	0.25
1b. Wages & Salary	714	0.09	913	0.11	725	0.06	1660	0.11	2583	0.09
2. Nonagricultural income	1774	0.23	2870	0.34	5927	0.48	6523	0.41	10818	0.39
2a. Non-agricultural Wage	700	0.09	1388	0.16	1514	0.12	2072	0.13	3496	0.13
2b. Non-agricultural Salary		.		.	1964	0.16	2171	0.14	3494	0.13
2c. Non-farm Enterprise	1074	0.14	1482	0.18	2449	0.20	2280	0.14	3828	0.14
3. Remittances and Transfers	872	0.11	583	0.07	1366	0.11	1673	0.11	4005	0.14
3a. Foreign Remittances	872	0.11	583	0.07	706	0.06	791	0.05	2644	0.09
3b. Transfers (+ domestic remittances)		.		.	659	0.05	882	0.06	1361	0.05
4. Other Income	1098	0.14	1068	0.13	1711	0.14	1945	0.12	2902	0.10
4a. Rent from Land	53	0.01	68	0.01	358	0.03	463	0.03	628	0.02
4b. Return to Other Assets		.		.	233	0.02	132	0.01	181	0.01
4c. Others	1045	0.14	1000	0.12	1120	0.09	1351	0.09	2093	0.07
Total (1+2+3+4)	7601		8410		12352		15739		27392	
N	768		1008		1262		1279		1566	

Table 1g: Breakdown of per capita annual income into Sectors (Current prices) - quintile 5

Income from	1991		1995		2000		2005		2010	
	PCI	As %	PCI	As %	PCI	As %	PCI	As %	PCI	As %
1. Agriculture: farming and agricultural wages & salary	6596	0.50	6223	0.39	4688	0.16	8704	0.24	19320	0.29
1a. Farming	5802	0.44	5541	0.35	4385	0.15	7480	0.20	17986	0.27
1b. Wages & Salary	794	0.06	681	0.04	302	0.01	1224	0.03	1335	0.02
2. Nonagricultural income	3109	0.24	4912	0.31	14893	0.51	15409	0.42	21093	0.31
2a. Non-agricultural Wage	1487	0.11	2509	0.16	1949	0.07	1418	0.04	2376	0.04
2b. Non-agricultural Salary		0.00		0.00	5700	0.19	7330	0.20	8768	0.13
2c. Non-farm Enterprise	1623	0.12	2402	0.15	7244	0.25	6661	0.18	9950	0.15
3. Remittances and Transfers	1661	0.13	2717	0.17	4362	0.15	6923	0.19	18588	0.28
3a. Foreign Remittances	1661	0.13	2717	0.17	3193	0.11	5312	0.14	15205	0.23
3b. Tranfers (+ domestic remittances)		0.00		0.00	1168	0.04	1611	0.04	3383	0.05
4. Other Income	1837	0.14	2090	0.13	5378	0.18	5820	0.16	8489	0.13
4a. Rent from Land	200	0.02	305	0.02	975	0.03	1537	0.04	2033	0.03
4b. Return to Other Assets		0.00		0.00	1856	0.06	332	0.01	1163	0.02
4c. Others	1637	0.12	1786	0.11	2547	0.09	3950	0.11	5293	0.08
Total (Stata)	13203		15941		29321		36856		67491	
	768		1008		1262		1279		1566	

Table 2b. Breakdown of PCI into Sectors (Real, base year-1991-92) - Quintile 1

Income from	1991	1995	2000	2005	2010	
1. Agriculture: farming and agricultural wages & salary	1563	1493	1073	1077	1156	
1a. Farming	671	692	429	465	632	
1b. Wages & Salary	892	802	644	613	523	
2. Nonagricultural income	707	656	564	595	767	
2a. Non-agricultural Wage	351	415	107	351	404	
2b. Non-agricultural Salary		0	231	68	141	
2c. Non-farm Enterprise	356	240	226	176	222	
3. Remittances and Transfers	235	136	169	178	357	
3a. Foreign Remittances	235	136	11	18	160	
3b. Tranfers (+ domestic remittances)		0	158	161	197	
4. Other Income	316	343	274	245	193	
4a. Rent from Land	6	6	47	46	57	
4b. Return to Other Assets		0	21	5	8	
4c. Others	310	337	206	194	128	
Total (Stata)	2820	2628	2080	2096	2473	
	N	768	1008	1262	1280	1567

Table 2d: Growth of per capita real income of each sector and their relative contribution to overall growth- Quintile 2

Income from	1991-95		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio
1. Agriculture: farming and agricultural wages & salary	-0.16	-0.09	-0.20	-0.11	0.04	0.02	0.08	0.04	-0.25	-0.14
1a. Farming	-0.19	-0.07	-0.37	-0.12	0.19	0.04	0.07	0.02	-0.35	-0.12
1b. Wages & Salary	-0.12	-0.03	0.05	0.01	-0.09	-0.02	0.09	0.02	-0.09	-0.02
2. Nonagricultural income	0.13	0.03	0.28	0.08	-0.07	-0.03	0.16	0.06	0.54	0.13
2a. Non-agricultural Wage	0.50	0.05	-0.49	-0.08	1.31	0.11	0.07	0.01	0.91	0.09
2b. Non-agricultural Salary	.	0.00	.	0.15	-0.65	-0.10	0.44	0.02	.	0.07
2c. Non-farm Enterprise	-0.14	-0.02	0.10	0.01	-0.28	-0.04	0.17	0.02	-0.21	-0.03
3. Remittances and Transfers	-0.54	-0.05	0.50	0.02	-0.15	-0.01	0.85	0.06	0.08	0.01
3a. Foreign Remittances	-0.54	-0.05	-0.64	-0.03	-0.35	-0.01	4.28	0.05	-0.43	-0.04
3b. Tranfers (+ domestic remittances)	.	0.00	.	0.06	-0.09	-0.01	0.08	0.00	.	0.05
4. Other Income	0.16	0.02	-0.07	-0.01	-0.13	-0.02	-0.03	0.00	-0.09	-0.01
4a. Rent from Land	0.15	0.00	3.05	0.01	0.23	0.00	0.08	0.00	5.24	0.02
4b. Return to Other Assets	.	0.00	.	0.01	-0.55	0.00	-0.36	0.00	.	0.00
4c. Others	0.16	0.02	-0.24	-0.03	-0.17	-0.02	-0.04	0.00	-0.29	-0.03
Total (Stata)		-0.10		-0.01		-0.04		0.15		-0.02

Table 2e: Growth of per capita real income of each sector and their relative contribution to overall growth- Quintile 3

Income from	1991-1995		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio
1. Agriculture: farming and agricultural wages & salary	-0.22	-0.12	-0.28	-0.14	0.18	0.06	0.13	0.05	-0.25	-0.14
1a. Farming	-0.27	-0.11	-0.37	-0.13	0.21	0.04	0.11	0.03	-0.38	-0.15
1b. Wages & Salary	-0.09	-0.01	-0.08	-0.01	0.13	0.02	0.16	0.03	0.10	0.02
2. Nonagricultural income	0.31	0.06	0.49	0.15	-0.14	-0.06	0.18	0.07	0.98	0.21
2a. Non-agricultural Wage	0.95	0.07	-0.35	-0.06	0.60	0.06	0.23	0.04	1.50	0.11
2b. Non-agricultural Salary	.	0.00	.	0.17	-0.44	-0.07	0.14	0.01	.	0.10
2c. Non-farm Enterprise	-0.03	0.00	0.26	0.04	-0.29	-0.05	0.15	0.02	0.00	0.00
3. Remittances and Transfers	-0.52	-0.05	0.74	0.04	-0.06	-0.01	0.31	0.03	0.03	0.00
3a. Foreign Remittances	-0.52	-0.05	-0.40	-0.02	-0.04	0.00	0.64	0.02	-0.54	-0.06
3b. Tranfers (+ domestic remittances)	.	0.00	.	0.06	-0.07	0.00	0.13	0.01	.	0.06
4. Other Income	-0.05	-0.01	0.09	0.01	-0.18	-0.02	0.10	0.01	-0.07	-0.01
4a. Rent from Land	0.28	0.00	1.74	0.01	-0.09	0.00	0.14	0.00	2.64	0.01
4b. Return to Other Assets	.	0.00	.	0.01	-0.67	-0.01	0.25	0.00	.	0.00
4c. Others	-0.07	-0.01	-0.13	-0.02	-0.14	-0.01	0.08	0.01	-0.25	-0.03
Total (1+2+3+4)		-0.12		0.07		-0.03		0.16		0.06

Table 2f: Growth of per capita real income of each sector and their relative contribution to overall growth- Quintile 4

Income from	1991-1995		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio
1. Agriculture: farming and agricultural wages & salary	-0.19	-0.09	-0.32	-0.15	0.29	0.08	0.17	0.06	-0.17	-0.09
1a. Farming	-0.24	-0.10	-0.31	-0.11	0.15	0.03	0.22	0.05	-0.26	-0.11
1b. Wages & Salary	0.03	0.00	-0.37	-0.04	0.76	0.04	0.05	0.01	0.19	0.02
2. Nonagricultural income	0.30	0.07	0.62	0.21	-0.15	-0.07	0.12	0.05	1.01	0.24
2a. Non-agricultural Wage	0.60	0.06	-0.14	-0.02	0.05	0.01	0.14	0.02	0.65	0.06
2b. Non-agricultural Salary	.	0.00	.	0.18	-0.15	-0.02	0.09	0.01	.	0.15
2c. Non-farm Enterprise	0.11	0.02	0.30	0.05	-0.28	-0.06	0.14	0.02	0.18	0.02
3. Remittances and Transfers	-0.46	-0.05	0.84	0.06	-0.06	-0.01	0.62	0.07	0.52	0.06
3a. Foreign Remittances	-0.46	-0.05	-0.05	0.00	-0.14	-0.01	1.26	0.06	0.00	0.00
3b. Transfers (+ domestic remittances)	.	0.00	.	0.06	0.03	0.00	0.04	0.00	.	0.06
4. Other Income	-0.22	-0.03	0.26	0.03	-0.13	-0.02	0.01	0.00	-0.13	-0.02
4a. Rent from Land	0.04	0.00	3.12	0.03	0.00	0.00	-0.08	0.00	2.93	0.02
4b. Return to Other Assets	.	0.00	.	0.02	-0.57	-0.01	-0.07	0.00	.	0.01
4c. Others	-0.23	-0.03	-0.12	-0.01	-0.07	-0.01	0.05	0.00	-0.34	-0.05
Total (1+2+3+4)	-0.11	-0.11	0.16	0.16	-0.02	-0.02	0.18	0.18		0.19

Table 2g: Growth of per capita real income of each sector and their relative contribution to overall growth- Quintile 5

Income from	1991-1995		1995-2000		2000-2005		2005-2010		1991-2010	
	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio	Growth	Ratio
1. Agriculture: farming and agricultural wages & salary	-0.24	-0.12	-0.41	-0.16	0.43	0.07	0.50	0.12	-0.03	-0.02
1a. Farming	-0.23	-0.10	-0.38	-0.13	0.31	0.05	0.63	0.13	0.02	0.01
1b. Wages & Salary	-0.31	-0.02	-0.65	-0.03	2.11	0.02	-0.26	-0.01	-0.45	-0.03
2. Nonagricultural income	0.27	0.06	1.38	0.43	-0.20	-0.10	-0.07	-0.03	1.24	0.29
2a. Non-agricultural Wage	0.36	0.04	-0.39	-0.06	-0.44	-0.03	0.13	0.01	-0.47	-0.05
2b. Non-agricultural Salary	.	0.00	.	0.28	-0.01	0.00	-0.19	-0.04	.	0.22
2c. Non-farm Enterprise	0.19	0.02	1.37	0.21	-0.29	-0.07	0.01	0.00	1.02	0.13
3. Remittances and Transfers	0.32	0.04	0.26	0.04	0.22	0.03	0.82	0.15	2.69	0.34
3a. Foreign Remittances	0.32	0.04	-0.08	-0.01	0.28	0.03	0.94	0.14	2.02	0.25
3b. Transfers (+ domestic remittances)	.	0.00	.	0.06	0.06	0.00	0.42	0.02	.	0.08
4. Other Income	-0.08	-0.01	1.02	0.13	-0.17	-0.03	-0.01	0.00	0.53	0.07
4a. Rent from Land	0.23	0.00	1.52	0.03	0.21	0.01	-0.10	0.00	2.36	0.04
4b. Return to Other Assets	.	0.00	.	0.09	-0.86	-0.05	1.37	0.01	.	0.03
4c. Others	-0.12	-0.01	0.12	0.01	0.19	0.02	-0.09	-0.01	0.07	0.01
Total (1+2+3+4)	-0.03	-0.03	0.45	0.45	-0.03	-0.03	0.24	0.24		0.69

Table 6b: Ratio of non-agricultural income in agricultural and non-agricultural group - quintile 1

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.15	1.00	0.16	1.00	0.14	1.00	0.12	1.00	0.10	1.00
Farming	0.18	1.00	0.20	1.00	0.14	1.00	0.13	1.00	0.05	1.00
Wages & Salary	0.14	1.00	0.14	1.00	0.14	1.00	0.12	1.00	0.15	1.00
Nonagriculture	0.89	1.00	0.87	1.00	0.92	1.00	0.87	1.00	0.89	1.00

Table 6c: Ratio of non-agricultural income in agricultural and non-agricultural group - quintile 2

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.16	1.00	0.17	1.00	0.20	0.99	0.18	0.99	0.16	1.00
Farming	0.16	1.00	0.20	1.00	0.22	0.97	0.21	0.99	0.17	1.00
Wages & Salary	0.16	1.00	0.15	1.00	0.18	0.99	0.16	0.99	0.15	1.00
Nonagriculture	0.86	1.00	0.86	1.00	0.89	0.99	0.90	0.98	0.88	1.00

Table 6d: Ratio of non-agricultural income in agricultural and non-agricultural group - quintile 3

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.17	0.60	0.19	0.81	0.22	0.23	0.20	0.22	0.16	0.41
Farming	0.18	0.59	0.20	0.78	0.24	0.20	0.21	0.23	0.14	0.39
Wages & Salary	0.16	0.62	0.17	0.86	0.20	0.27	0.18	0.20	0.17	0.42
Nonagriculture	0.84	0.63	0.85	0.79	0.91	0.26	0.89	0.26	0.88	0.42

Table 6e: Ratio of non-agricultural income in agricultural and non-agricultural group - quintile 4

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.20	0.00	0.23	0.06	0.24	0.00	0.23	0.00	0.18	0.00
Farming	0.20	0.00	0.24	0.06	0.25	0.00	0.24	0.00	0.19	0.00
Wages & Salary	0.20	0.00	0.19	0.08	0.21	0.00	0.23	0.00	0.18	0.00
Nonagriculture	0.84	0.00	0.84	0.07	0.92	0.00	0.89	0.00	0.88	0.00

Table 6f: Ratio of non-agricultural income in agricultural and non-agricultural group - quintile 5

	1991		1995		2000		2005		2010	
Major Occupation	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate	Ratio	P. Rate
Agriculture	0.20	0.00	0.23	0.00	0.25	0.00	0.28	0.00	0.14	0.00
Farming	0.21	0.00	0.23	0.00	0.25	0.00	0.27	0.00	0.13	0.00
Wages & Salary	0.15	0.00	0.23	0.00	0.21	0.00	0.34	0.00	0.22	0.00
Nonagriculture	0.83	0.00	0.85	0.00	0.94	0.00	0.91	0.00	0.90	0.00

Table 7b: Breakdown of Per capita Annual Income of Rural Household

	1991			1995			2000			2005			2010		
Income from	PC Income (x)	w	wx	x	w	wx	x	w	wx	x	w	wx	x	w	wx
1. Agriculture	6527	0.58	3785	5667	0.53	2993	5527	0.37	2027	5850	0.43	2539	7394	0.38	2846
1a. Farming	7421	0.37	2765	6480	0.32	2052	6831	0.20	1373	6936	0.24	1658	9033	0.22	1987
1b. Wages & Salary	4920	0.21	1020	4450	0.21	941	3946	0.17	654	4519	0.19	881	5207	0.16	858
2. Nonagriculture	6793	0.25	1695	6452	0.34	2207	8501	0.46	3943	7839	0.41	3250	8339	0.41	3404
Non-agricultural Wage	6707	0.11	732	6320	0.19	1178	6939	0.10	687	5165	0.16	812	6054	0.16	974
Non-agricultural Salary		0.00	0	0	0.00	0	8512	0.18	1491	10191	0.12	1230	10301	0.11	1151
Non-farm Enterprise	6860	0.14	963	6610	0.16	1030	9307	0.19	1766	8814	0.14	1209	9417	0.14	1279
3. Remittances and	7717	0.10	806	9857	0.07	679	10182	0.08	859	10804	0.09	927	14367	0.12	1706
Foreign Remittances	7717	0.10	806	9857	0.07	679	13922	0.04	613	14068	0.05	699	17523	0.08	1376
Domestic remittances)		0.00	0	0	0.00	0	6103	0.04	246	6310	0.04	228	8205	0.04	330
4. Other Income	7056	0.07	467	6247	0.06	380	8869	0.09	754	9705	0.07	636	10030	0.09	884
4a. Rent from Land	10819	0.01	59	9317	0.01	59	8247	0.01	98	8833	0.01	119	9072	0.02	147
Return to Other Assets		0.00	0	0	0.00	0	15846	0.01	219	8059	0.00	31	19593	0.00	85
4c. Others	6717	0.06	408	5889	0.05	321	7367	0.06	437	10082	0.05	486	9645	0.07	652
Total (Stata)	6753			6260			7584			7353			8840		