CHAPTER - III

LABOUR SHARE : INDUSTRY-MIX EFFECTS

1. The Problem :

The important aspect in the context of the observed trend in labour's share is the changes in industrial structure associated with the growth of the economy. Dunlop, while analysing the labour's share during the depression, made an interesting observation that "those industries which lost weight most heavily in depressions showed the most marked increase in the rate of participation in the same period..... The decreased importance in depression of industries whose rate of participation increases most rapidly tends to make for a relatively stable share".[1]

The findings are quite interesting and suggestive of the overall wage share variations to be explained in terms of changes in industry wage share (participation rate) and changes in the relative importance of the industry over time. Since the overall wage share is a weighted average of individual wage share (weights being the industry share in total value added), the growth of industries will always be accompanied by the distributional

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1. J.T.Dunlop: Wage Determination Under Trade Unions, (New York: Augustus M.Kelley, 1950), p.165.

shifts in their relative importance and hence influence the overall wage share. "When more than one enterprise is combined, the share of the aggregate income going to labour will depend upon both the share in each firm and the relative amounts of incomes generated by each concern".[2] It was this structural factor which inspired Solow[3] to raise some doubts against the constancy of labour's share. The 'constancy', he argued, may not be a 'miracle' (Keynes), but rather an 'optical illusion'.

In what follows an attempt is made to isolate and quantify the sources of overall wage share changes attributable to changes in industry wage share (Participation rate) and changes in relative importance of the industry (share of the industry in total value added). This has been done for the period 1953-1965 for 28 (all CMI except one) industries considered in Chapter II (industry group A), and for the period 1959-1965 for all ASI (two-digit) industries (industry group B). The following methodology has been adopted[4] for the purpose.

2. Methodology :

Let l_i be wages paid to workers in i^{th} industry, and y_i the value added by that industry. The participation

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2. Ibid, p.164.

3. R.M.Solow: "A Skeptical Note on the Constancy of Relative Shares", American Economic Review, Sept., 1958.

4. J.T.Dunlop: Op.cit., p.163-173. See also J.W.Beck, "An Inter-Industry Analysis of Labour's Share", Industrial and Labour Relations Review, Jan, 1958.

rate in the i^{th} industry (labour's share within the industry), then, would be expressed as $P_i = l_i/y_i$.

Defining Y as the total value added by the manufacturing sector, the weight of the industry - the value added in i^{th} industry as a proportion of total value added of the sector would be $W_i = \frac{y_i}{Y}$ (since W_i is the share of the industry in total, $\leq W_i = 1$, and since increase in relative importance of some industries means decrease in relative importance of the other ($\leq \Delta W=0$).

The contribution rate of the i^{th} industry - wage as a proportion of total value added - then, could be expressed as : $C_i = l_i/Y$

Now, since $P_i = l_i/y_i$, $\quad l_i = P_i Y_i$

and $\quad W_i = y_i/Y, \quad Y = y_i/W_i$

Therefore, $C_i = l_i/Y = \frac{P_i y_i}{Y} = \frac{P_i y_i W_i}{y_i} = P_i W_i$

Thus, the contributon rate (C_i) is the product of the participation rate and the weight.

Also $\leq P_i W_i = \leq C_i = \frac{\leq l_i}{Y} = \frac{\text{total wage bill}}{\text{total value added}}$

This means that the overall wage share is nothing but the sum of the contribution rates, which in turn is equal to the sum of the product of the weights and participation rates.

It follows from the above equation that $\leq \triangle C_i = \leq (P_i \triangle W_i + W_i \triangle P_i + \triangle W_i \triangle P_i)$ i.e. the variations in labour's share are split into changes in industry weights and changes in industry participation rates. This equation, thus, enables us to findout the extent to which the variations in overall wage share are attributable to changes in relative importance of industries and to changes in participation rates in different industries. $P_i \triangle W_i$ indicates that the participation rate is held constant while the weight is allowed to vary; and $W_i \triangle P_i$ indicates that weight is held constant and participation rate is allowed to vary. $(\triangle W_i \triangle P_i)$ is an 'unexplained residual', which measures the combined influence of both weight and participation rate shifts. This term can be eliminated by using a system of 'cross weights'; $\triangle P_i$ must be weighted by W_i' in the initial year and then by W_i in the terminal year; these two weighted changes in P_i are then averaged to get the term $W_i \triangle P_i$. In the same way the cross weights are applied to get the term $P_i \triangle W_i$.

3. <u>The Period of 1953-1965 (Industry Group A)</u> :

The changes in relative importance of different industries between 1953 and 1965 are presented in Table III-1. Out of the 28 industries examined, it can be seen, ten industries,namely, rice milling, sugar, edible hydrogenated oils, paints and varnishes, soap, tanning,

Table III-1

Relative Importance of Industries and Changes therein during 1953 and 1965 (in percentage points)

S. No.	Industry	Relative importance (weight)		Change in weight in 1965 over 1953
		1953	1965	
1		2	3	4
1.	Wheat floor	0.4849	0.5710	+ 0.0861
2.	Rice milling	0.4642	0.4209	- 0.0433
3.	Biscuit making	0.3553	0.6823	+ 0.3270
4.	Fruits and vegetables processing	0.0857	0.1433	+ 0.0576
5.	Sugar	6.9707	6.2664	- 0.7043
6.	Distilleries & Breweries	0.3647	0.8485	+ 0.4838
7.	Starch	0.1802	0.3121	+ 0.1319
8.	Oilseeds crushing	0.7923	1.5758	+ 0.7835
9.	Edible hydrogenated oils	1.8224	1.1340	- 0.6884
10.	Paints and varnishes	0.7375	0.7098	- 0.0277
11.	Soap	1.2365	1.1388	- 0.0977
12.	Tanning	0.3844	0.3777	- 0.0067
13.	Cement	2.7826	3.1527	+ 0.3701
14.	Glass & glassware	0.5777	1.0533	+ 0.4756
15.	Ceramics	0.9182	0.6500	- 0.2682
16.	Plywood & teachests	0.2245	0.4285	+ 0.2040
17.	Paper & paperboard	2.2744	3.6591	+ 1.3847
18.	Matches	1.1497	0.6744	- 0.4753
19.	Cotton textiles	43.9050	31.0072	-12.8978

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Table III-1 (concluded)

Relative Importance of Industries and Changes therein during 1953 and 1965 (in percentage points) (concluded)

S. No.	Industry	Relative importance (weight)		Change in weight in 1965 over 1953
		1953	1965	
1		2	3	4
20.	Woollen textiles	1.0650	1.3761	+ 0.3111
21.	Jute textile	13.4944	7.4590	- 6.0354
22.	Chemicals	5.8164	15.4417	+ 9.6253
23.	Aluminium, copper and brass	1.1963	4.2425	+ 3.0462
24.	Iron & steel	11.4131	13.8010	+ 2.3879
25.	Bicycles	0.4424	1.4002	+ 0.9578
26.	Sewing machines	0.3156	0.3492	+ 0.0336
27.	Electric lamps	0.1811	0.3172	+ 0.1361
28.	Electric fans	0.3642	0.8065	+ 0.4423

Source: Same as Appendix III-1

ceramics, matches, cotton textiles and jute textile show a decline in their relative importance over the period - the highest decline of about 12.9 and 6.0 per cent points being noticed in cotton textiles and jute textile respectively. Both of these old and traditional industries, although occupying the largest share in value added (about 57% in 1953 and 38% in 1965), show a sharp decline in their relative importance. This is precisely because of the rapid growth of heavy and basic industries like chemicals, aluminium, copper and brass, and iron and steel which show the highest rise in their relative importance. These industries have gained their importance by about 9.6, 3.0 and 2.4 per cent points respectively, over the period. As regards the wage share, as noted in Chapter II, 15 industries show a fall and 13 industries a rise in the share. The following table summarises the relative positions of industries in respect of change in wage share and change in their weights between 1953 and 1965.

	Rise in wage share	Fall in wage share
Gain in weight	8	10
Loss in weight	5	5

Ten industries gained in weight but lost in wage share, while five industries lost in weight but gained in wage share. In the remaining thirteen industries weight and wage share have moved in the same direction. (In the case of employee

share also, 15 industries show an inverse relationship between changes in employee share and shifts in weights).

The following Table III-2 gives the breakdown of changes in labour's share due to weight shifts and due to changes in industry wage share. The changes are calculated for each year with reference to 1953. The shifts in industry weights and changes in industry wage share, as it can be seen from the table, have played their roles in the same direction - to make the wage share fall in each year relative to 1953. In other words, the fall in overall wage share caused by fall in individual industry wage shares, has been further aggrevated by the decline in weights of the industries. Had the industrial composition, for exampl, been tne same as in 1953, there would have been only 1.63 per cent points decline in wage share in 1965 as compared to 1953. Out of the fall of 8.74 per cent points in wage share in 1965, 7.11 per cent points is purely because of fall in the relative importance of the industries.

The average fall in overall wage share during the period is 7.38 per cent points, This fall is attributed to weight snifting of industries by 3.51 per cent points and to industry wage share changes by 3.87 per cent points (both figures being averages). In the absence of any weight shifts, thus, the fall in average wage share would be of the

Table III-2

Breakdown of Changes in Labour's Share

(Changes are in percentage points)

Year	Observed wage share %	Change in the observed share over 1953	Change due to shifts in industry weights (PΔw)	Change due to wage share shifts within industries (WΔP)	Wage share net of shifts in industry weights
1	2	3	4	5	6
1953	49.39	-	-	-	49.39
1954	45.96	- 3.43	- 0.88	- 2.55	46.84
1955	42.05	- 7.34	- 1.22	- 6.12	43.27
1956	41.73	- 7.66	- 1.69	- 5.97	43.42
1957	44.00	- 5.39	- 3.51	- 1.88	47.51
1958	41.02	- 8.37	- 4.08	- 4.29	45.10
1959	40.30	- 9.09	- 3.84	- 5.25	44.14
1960	42.20	- 7.19	- 3.00	- 4.19	45.20
1961	41.33	- 8.06	- 3.38	- 4.68	44.71
1962	43.04	- 6.35	- 3.44	- 2.91	46.48
1963	41.44	- 7.95	- 4.57	- 3.38	46.01
1964	40.38	- 9.01	- 5.44	- 3.57	45.82
1965	40.65	- 8.74	- 7.11	- 1.63	47.76

Source: Derived from Appendix III-1,2,3.

order of only 3.87 per cent points instead of the observed fall of 7.38 per cent points.

The overall wage share series corrected for the shifts in industry weights is presented in column 6 of Table III-2. It can be seen that the fall in wage share series net of weight shifts in industries is very much slowed down (has became almost constant) compared to the original observed wage share series (shown in Column 2 of the Table). The range of variations in the wage share has now declined to 6.12 per cent points in the new series as compared to 9.09 per cent points in the original observed series.

The wage share series corrected for the shifts in industry weights, when regressed over time, gives the value of the trend coefficient as -0.0017 (the value of standard error being 0.1371). Thus, the value of the trend coefficient has been both low and statistically insignificant.[5] It is changes in relative importance of industries which seem to have influenced the declining overall wage share during the period.

3. <u>The period of 1959-1965 (Industry Group B)</u> :

The period 1959-1965 analysed, covers all industries (including the 29 CMI industries) as reported in the Annual

5. The value of the trend coefficient in the case of observed wage share has been highly significant at -0.456, see Chapter II.

Survey of Industries. One might argue that in such a short period as considered here, the changes in labour's share would only reflect the degree of utilisation of resources during the various phases of trade cycle, But it should be remembered that " a country which is undergoing a deliberate process of development can be expected to experience certain structural shifts even in a relatively short period".[6]

Table III-3 presents overall as well as industrywise relative wage share over 1959-1965. The overall wage share, it can be seen, although shows a moderate rise of about 0.85 per cent point between 1959-1965, displays fluctuations of rise during 1959-1960 then fall during 1960-61, again rise during 1961-62 and then fall during1962-1965. So far as individual industries are concerned, furniture and fixtures, and tobacco show the largest fall of 12.55 and 12.35 per cent points respectively in the wage share. The industries showing the highest rise of 9.02 and 7.20 per cent points over the period are wood and cork and non-metallic industries (including petroleum and coal) respectively. There are in all, ten industries which show a rise and seven industries which show a fall in the wage share (out of the total of 17 industries).

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6. K.Ranadive: "Wage share in Organised Manufacturing Industries in India, 1946-1957", Artha Vijanana, Dec.1961, p.321.

Table III-3

Labour's Share in Value added 1959-1965
(In percentages)

Industry No.	Industry	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9
20,21.	Food (including Beverage)	19.23	23.04	25.45	25.84	27.90	26.97	26.15
22	Tobacco	32.93	38.42	37.21	35.11	26.27	27.45	20.58
23	Textiles	55.02	55.20	53.40	55.12	54.49	55.22	57.40
24&29	Leather and Fur products	38.81	48.24	45.97	49.04	46.05	44.34	44.72
25	Wood & Cork	31.22	38.27	38.41	34.64	34.63	40.69	40.24
26	Furniture and Fixtures	49.55	55.23	50.77	48.14	50.33	43.83	37.00
27	Paper & Paper products	23.72	31.28	31.82	29.62	28.70	28.39	30.41
28	Printing & publishing	38.65	39.84	42.51	46.21	42.34	43.71	43.28
30	Rubber products	23.32	22.79	23.08	23.97	25.18	32.03	28.48
31	Chemicals and chemical products	18.35	20.69	20.73	20.41	19.90	20.29	18.29
32-33	Non-metallic minerals (including Petroleum & Coal)	23.51	28.20	27.97	28.06	27.97	31.72	30.71
34	Basic metal	33.05	38.06	35.70	35.78	33.14	29.25	32.25
35	Metal products	34.10	36.95	36.53	40.39	32.84	33.77	30.19

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Table III-3 (concluded)

Labour's Share in Value added 1959-1965 (concluded)

(in percentages)

Industry No.	Industry	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9
36	Machinery	38.65	44.23	40.01	38.82	38.34	34.47	34.12
37	Electrical machinery	28.03	30.59	31.16	35.41	32.03	30.49	28.69
38	Transport equipment	47.84	46.23	50.96	45.59	45.46	43.72	46.89
39	Miscellaneous	36.33	41.76	43.81	41.39	36.80	35.45	36.67
ALL		37.32	40.06	39.72	40.01	38.74	38.23	38.17

Source: Calculated from the data provided in Annual Survey of Industries.

Table III-4 shows the relative importance of the industries over 1959-1965. There are 6 industries which gained and 9 industries which lost in weight during the period - the highest rise of 3.09 and 2.93 per cent points being in basic metal and machinery industries respectively; while the largest fall of 5.82 and 4.37 per cent points being in textiles and food respectively.

There are as many as 14 industries which show a change of opposite directions in relative importance and participation rate between 1959 and 1965 -industries which gained in weight, lost in participation rates and vice-versa. Considering the breakdown of the whole series in terms of rise and fall in the overall wage share, we find that there have been only five industries during 1959-1960, six during 1960-1961, four during 1961-1962 and two during 1962-1965 (see Table III-5) which show direct relationship between change in relative importance and participation rate.

The following table summarises the extent of fluctuations in overall wage share attributable to weight shifts and changes in participation rates (figures being in percentage points).

Table III-4

Share in Value added (weight) by Industry,

1959-1965 (in percentages)

ASI No.	Industry	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9
20-21	Food (including Beverage)	14.11	12.60	12.22	11.55	9.41	9.57	9.74
22	Tobacco	2.23	2.02	2.06	1.90	2.11	1.89	2.13
23	Textiles	31.61	32.63	32.57	31.59	29.51	28.19	25.79
24&29	Leather & Fur products	0.46	0.41	0.40	0.40	0.43	0.44	0.45
25	Wood & Cork	0.44	0.37	0.35	0.36	0.37	0.35	0.40
26	Furniture & Fixtures	0.39	0.39	0.40	0.44	0.42	0.43	0.47
27	Paper & Paper products	2.32	2.04	1.93	2.03	2.15	2.09	1.98
28	Printing & Publishing	2.59	2.51	2.58	2.34	2.36	2.33	2.36
30	Rubber products	2.36	2.66	2.76	2.71	2.68	2.05	2.26
31	Chemicals & Chemical products	8.42	8.57	9.36	9.29	9.41	9.09	9.94
32-33	Non-metallic mineral products (including Petroleum & Coal)	6.95	6.40	6.28	6.08	6.12	5.43	5.52

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Table III-4 (concluded)

Share in Value added (weight) by Industry,

1959-1965 (concluded) (in percentages)

ASI No.	Industry	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9
34	Basic metal	9.59	8.94	8.83	9.72	12.06	13.87	12.68
35	Metal products	1.83	2.12	2.23	2.40	2.67	2.48	3.06
36	Machinery (excl.Electrical)	2.98	3.31	3.94	4.22	4.66	5.29	5.91
37	Electrical machinery	3.48	3.56	3.88	3.73	4.44	4.61	5.19
38	Transport equipment	9.10	10.44	9.22	10.16	9.91	10.51	10.76
39	Miscellaneous	1.12	1.00	0.98	1.06	1.24	1.35	1.36

Source: Same as Table III-3.

Table III-5

Breakdown of Variations in Labour's Share Attributed to Weight Shifts ($P\triangle W$) and Wage Share Changes ($W\triangle P$) - By Industry. (Percentage points).

Industry No.	Industry	1959-60		1960-61		1961-62		1962-65	
		$P_1\triangle W_i$	$W_i\triangle P_i$	$P_i\triangle W_i$	$W_i\triangle P_i$	$P_i\triangle W_i$	$W_i\triangle P_i$	$P_i\triangle W_i$	$W_i\triangle P_i$
1	2	3	4	5	6	7	8	9	10
20-21	Food(including Beverage)	-0.32	+0.50	-0.09	+0.30	-0.17	+0.05	-0.47	+0.03
22	Tobacco	-0.07	+0.11	+0.01	-0.02	-0.06	-0.04	+0.06	-0.29
23	Textiles	+0.56	+0.06	-0.03	-0.59	-0.53	+0.54	-3.26	+0.65
24&29	Leather & Fur products	-0.02	+0.04	0.00	-0.01	0.00	+0.01	+0.02	-0.02
25	Wood & Cork	-0.02	+0.03	-0.01	0.00	0.00	-0.01	+0.01	+0.02
26	Furniture & fixtures	0.00	+0.02	+0.01	-0.02	+0.02	-0.01	+0.01	-0.05
27	Paper & paper products	-0.08	+0.16	- 0.03	+0.01	+0.03	-0.04	-0.02	+0.02
28	Printing & publishing	-0.03	+0.03	+0.03	+0.07	-0.10	+0.09	+0.01	-0.07
30	Rubber products	+0.07	-0.01	+0.02	+0.01	-0.01	+0.02	-0.12	+0.12
31	Chemicals & chemical products	+0.03	+0.20	+0.16	0.00	-0.01	-0.03	+0.12	-0.20

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Table III-5 (concluded)

Breakdown of Variations in Labour's Share Attributed to Weight Shifts ($P\triangle W$) and Wage Share Changes ($W\triangle P$) - By Industry (concluded) (Percentage points)

Industry No.	Industry	1959-60		1960-61		1961-62		1962-65	
		$P_1 \triangle W_1$	$W_1 \triangle P_1$	$P_1 \triangle W_1$	$W_1 \triangle P_1$	$P_1 \triangle W_1$	$W_1 \triangle P_1$	$P_1 \triangle W_1$	$W_1 \triangle P_1$
1	2	3	4	5	6	7	8	9	10
32-33	Non-metallic mineral products(incl. petroleum & coal)	-0.14	+0.31	-0.04	-0.01	-0.05	0.00	-0.17	+0.16
34	Basic metal	-0.23	+0.46	-0.04	-0.21	+0.32	+0.01	+1.01	-0.38
35	Metalproducts	+0.10	+0.05	+0.04	-0.01	+0.06	+0.09	+0.23	-0.27
36	Machinery(Excl. Electrical)	+0.14	+0.18	+0.27	-0.16	+0.11	-0.05	+0.62	-0.24
37	Electrical machinery	+0.02	+0.09	+0.10	+0.02	-0.05	+0.16	+0.47	-0.30
38	Transport equipment	+0.63	-0.16	-0.59	+0.46	+0.45	-0.52	+0.27	+0.13
39	Miscellaneous	-0.04	+0.07	-0.01	+0.02	+0.03	-0.02	+0.11	-0.05
Total		+0.60	+2.14	-0.20	-0.14	+0.04	+0.25	-1.10	-0.74

Source: Calculated from Table III-3,4.

Period	Observed variations in wage share	Variations in wage share due to weight shifts	Variations in wage share due to participation rate changes
1950-60	+2.74	+0.60	+2.14
1960-61	-0.34	-0.20	-0.14
1961-62	+0.29	+0.04	+0.25
1962-65	-1.84	-1.10	-0.74

Of the periods of rising wage share, namely, 1959-60 and 1961-62, 1959-60 shows relatively a sharp rise of 2.74 per cent points in the wage share. The shifts in industry weights, it can be seen, have not been important factors in influencing the overall wage share in both these years. However, it has been little aggrevated by the weight shifts in different industries. The greatest increase in participation rates during 1959-60 has occurred in Food (including beverage) and Basic metal industries (see Table III-5). Interestingly enough, these industries also show the greatest decline in their relative importance. In 1961-62, another period of rising wage-share, also reveals that the Textiles industry which shows the greatest rise in participation rate, is associated with the greatest fall in its relative importance. These factors, therefore, seem to have prevented the overall wage share from rising further.

The periods of 1960-61 and 1962-65 have experienced a fall in the overall wage share. These have been of the order of 0.34 and 1.84 per cent points respectively. Unlike the periods of rising wage share, the fall in overall wage shares during the periods, seem to have been caused more by weight shifts rather than changes in participation rates. In the absence of any weight shifting of the industries, the overall wage shares would have shown the fall of 0.14 and 0.74 per cent points only in 1960-61 and 1962-65 respectively. It is interesting to note that in 1960-61, the two industries, namely, food and transport equipment, which show the greatest fall in their relative importance also show the greatest rise in their participation rates (Table III-5). Similarly during 1962-65 the textiles industry which shows the greatest fall in its relative importance (of the order of 3.26 per cent points) also shows the greatest rise in its participation rate (0.65 per cent points). The fall in the overall wage share, therefore, actually is dampened by the rise in the participation rates of these industries.

The fluctuations in overall wage share are accompanied by a continuous rise in the total value added of the manufacturing sector over the period 1959-65. There is, therefore, inverse relationship between wage share and value added during 1960-61 and 1962-65. This might be explained

in terms of what is called 'ratchet' or 'elbow-joint' effect. The ratio of wages to value added would rise whenever value added falls (since wages are stickly downward), but when value added rises again, wages do not rise at the same rate, this makes the relative wage share to fall with rise in value added. Alternatively, a rise in value added not accompanied by any change in wages, or rise in wages less than proportionately, would make the two series to move in the opposite directions. The period of rising wage share, associated with a rise in value added would only mean that wages are rising at a faster rate than the rise in value added; or wage rate is rising at a faster rate than the rise in labour productivity.

4. Conclusion :

There are two forces which operate upon the overall wage share (a) inter-industry force or the change in relative importance (weights) of different industries, and (b) intra-industry force which operates in a particular industry through changes in the participation rate of the industry. The former, inter-industry force, is nothing but industry-mix or structural shifts brought about say, by emphasis on heavy and capital using industries particularly in the initial stages of economic development. However, since the capital intensive industries are generally

low wage share industries and labour intensive industries are high wage share industries,[7] the increase in relative importance of capital intensive (low wage share) industries associated with fall in relative importance of high wage share industries would bring about a fall in overall wage share and thereby make the distribution unfavourable to labour class, in spite of the fact that the industry wage shares (participation rates) do not change.

When we isolate the effects of shifts in industry-mix on the overall wage share, what we find is that it is not the intra-industry force (participation rates in different industries), but the change in industry-mix which has been responsible for the fall in the overall wage share during the period 1953-65. In other words, in the absence of any change in industry-mix, the overall wage share would display a very negligible fall (almost constant trend). The trend coefficient of the observed wage share series which was found tobe -0.456(Chapter II) is now substantially reduced to -0.002 (with stand error of 0.137) in the case of the corrected series. Thus, it is the change in relative

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7. The correlation coefficient between wage share and capital/labour ratio (adjusted capital as per discussion in Chapter IV) in different ASI industries in 1964, has worked out to be highly significant at -0.676).

importance of industries which have played a crucial role in making the overall wage share to decline over the period 1953-1965.

In case of the period 1959-1965, although it covers all ASI industries, it is difficult to establish any regular trend. The wage share shows fluctuations between 37.32 and 40.06 per cent points. The influence of weight shifting and participation rates on overall wage share have been in the same direction, both in rising and falling wage share periods. In the case of rising wage share periods namely, 1959-60 and 1961-62, it is the changes in participation rates which are dominating, while in the periods of falling wage share namely, 1960-61 and 1962-65, it is the changes in industrial composition which have relatively greater influence on the overall wage share.

The industrial development programme characterised by emphasis on heavy industries, would be accompanied by a rise in capital relative to labour. Whether the increase in capital/labour ratio will affect the overall wage share or not will depend on(other things being given) the elasticity of substitution between factors of production. The rise in capital/labour ratio in an industry(due to say, rise in wage rate relative to cost of capital), would imply a fall in the relative share of labour if the

elasticity of substitution between labour and capital is greater than unity, and rise in relative share of labour if the elasticity of substitution is less than unity. Unfortunately, the formula of elasticity of substitution does not allow for its direct calculation. The way out is to evolve some method (like CES production function due to Solow, Minhas, Arrow and Channery, see Chapter VI) of estimation of the elasticity of substitution and then to examine and test the relationship between wage share on the one hand and the variables like capital/labour ratio and relative prices of the factors on the other hand.

APPENDIX II-A

Industry Share in Total Value Added (Weight)

1953-1965 (Percentages)

Industry	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Wheat floor	0.4849	0.6513	0.6196	0.6628	0.7160	0.7388	0.8367	0.5754	0.5084	0.4871	0.5552	0.7301	0.5710
2. Rice milling	0.4642	0.7130	0.9177	0.9248	0.8543	0.4972	0.5367	0.4454	0.6339	0.5442	0.5055	0.5663	0.4209
3. Biscuit making	0.3553	0.3565	0.3305	0.3392	0.4384	0.4972	0.4001	0.4696	0.4757	0.5709	0.5591	0.4953	0.6823
4. Fruits & Vegetables processing	0.0857	0.0785	0.0863	0.0586	0.0862	0.0993	0.0488	0.0559	0.0582	0.1123	0.1465	0.1262	0.1433
5. Sugar	6.9707	8.3287	7.8367	7.4449	8.8462	8.6267	7.4596	7.7266	8.1669	7.1593	5.4873	5.8104	6.2664
6. Distilleries & breweries	0.3647	0.3118	0.4124	0.3935	0.5026	0.4672	0.5517	0.4040	0.4834	0.4101	0.3901	0.6314	0. 8485
7. Starch	0.1802	0.1097	0.2075	0.1484	0.2395	0.2178	0.2715	0.2276	0.2238	0.2411	0.2526	0.1948	0.3121
8. Veg.oils-Oil seeds crushing.	0.7923	0.4306	1.1081	1.1717	1.0207	1.1394	1.6096	1.0972	1.1560	0.8539	1.0157	0.9816	1.5758
9. Edible Hydrogenated oils	1.8224	0.5938	1.2320	1.0299	1.1528	1.4181	1.6570	1.5512	1.2629	1.1577	1.0604	0.8496	1.1340
10. Paints & Varnishes	0.7375	0.8110	0.7765	0.8260	0.9317	0.9524	0.8699	0.7234	0.6131	0.8716	0.9147	0.8256	0.7098
11. Soap	1.2365	1.3489	1.3165	1.3796	1.4819	1.8131	2.0546	1.7829	1.6941	1.5573	1.4319	1.1986	1.1388
12. Tanning	0.3844	0.3354	0.2977	0.3406	0.3004	0.2981	0.5623	0.4755	0.4134	0.3328	0.3418	0.3233	0.3777
13. Cement	2.7826	3.1086	2.9740	2.6643	2.8463	2.8443	2.6562	2.6654	2.6337	3.0156	2.8971	2.4574	3.1527
14. Glass & Glassware	0.5777	0.6298	0.7313	0.7219	0.8635	1.0363	1.3260	1.1420	1.0873	1.1110	1.0668	1.0357	1.0533
15. Ceramics	0.9182	0.8536	0.8698	0.9006	1.0285	1.2787	0.4960	0.5022	0.4338	0.5363	0.4837	0.5681	0.6500
16. Plywood & teachests	0.2245	0.2543	0.3800	0.4065	0.4459	0.3797	0.4331	0.3907	0.2330	0.3357	0.3481	0.3075	0.4285
17. Paper & paperboard	2.2744	2.3750	2.8755	2.7398	3.2095	3.8766	3.9868	3.4471	3.2610	3.5190	3.8364	3.7527	3.6591
18. Matches	1.1497	1.0168	0.8564	0.9248	0.9172	1.1897	0.6907	0.9342	0.9035	0.8659	0.7049	0.6070	0.6744
19. Cotton textiles	43.9050	43.0798	43.5491	41.9489	38.3600	35.1941	36.8887	41.2550	42.6286	38.3253	34.9091	34.3089	31.0071
20. Woollen textiles	1.0650	0.8945	0.9288	0.8685	1.1941	1.2656	1.4791	1.2324	1.3997	1.6628	1.7099	1.5071	1.3761
21. Jute textile	13.4944	12.3027	9.9345	10.0734	9.1851	10.6486	9.8009	7.7202	6.0805	9.4247	9.0027	7.3903	7.4590
22. Chemicals	5.8164	5.6621	5.5239	7.0329	8.0814	8.9651	10.7755	10.9802	12.5027	12.7806	13.5762	13.4962	15.4417
23. Aluminium, copper & Brass	1.1963	1.8936	2.6328	2.0128	2.5051	2.6895	2.1196	2.0351	2.2560	2.5523	3.3449	4.0130	4.2425
24. Iron and Steel	11.4131	12.5860	11.8733	13.3295	12.7776	11.5889	10.4452	9.3769	8.5196	9.2482	12.8180	15.3224	13.8010
25. Bicycles	0.4424	0.6444	0.8040	0.8505	1.0078	1.0497	1.0278	1.3166	1.0305	1.0533	1.1769	1.2678	1.4002
26. Sewing machines	0.3156	0.1538	0.3461	0.3618	0.4342	0.6900	0.3191	0.3912	0.3294	0.3716	0.3771	0.2175	0.3492
27. Electric lamps	0.1811	0.1847	0.2128	0.2253	0.2569	0.2024	0.2102	0.2631	0.2690	0.3005	0.3279	0.2832	0.3172
28. Electric fans	0.3642	0.3054	0.3662	0.2194	0.3162	0.3378	0.4867	0.8131	0.7422	0.5990	0.7598	0.6821	0.8065

Source: Same as Appendix II-1.

APPENDIX III-2

Variations in Industry Wageshare (%) with respect to 1953

(in percentage points)

Industry	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Wheat floor	- 7.62	- 5.03	- 6.78	- 6.84	- 7.89	-10.54	- 3.21	+ 0.93	+ 0.11	- 3.04	- 8.27	- 5.34
2. Rice milling	- 7.02	-14.25	-15.76	-12.43	- 5.87	-11.79	- 4.83	-16.91	-14.47	-15.53	-16.92	-16.88
3. Biscuit making	- 5.81	- 6.11	- 7.76	-10.46	-11.15	- 8.06	- 7.73	- 6.50	- 9.16	- 7.39	- 5.26	- 9.80
4. Fruits & vegetables processing	- 1.83	- 5.82	+ 3.94	- 0.54	- 2.47	+ 3.35	+13.20	+11.72	+ 2.43	+ 3.48	+ 3.60	+ 5.60
5. Sugar	- 2.19	- 1.18	+ 1.02	- 2.93	- 3.32	- 2.07	- 1.21	+ 1.07	+ 3.93	+ 5.21	+ 3.12	+ 3.43
6. Distilleries & Breweries	+ 3.03	- 7.65	- 7.24	-10.00	- 7.05	-12.22	- 5.68	- 9.97	- 6.77	- 8.80	-11.03	-12.37
7. Starch	+18.22	- 3.32	+ 7.17	- 0.51	+ 2.33	- 0.09	+ 4.57	+ 3.47	+ 3.57	+ 0.67	+ 5.24	- 3.88
8. Veg.oils-oil seeds crushing.	+37.13	- 6.19	-11.09	- 7.45	-17.36	-25.56	-14.68	-16.98	- 9.30	-13.09	-12.04	-22.50
9. Edible Hydrogenated oils	+29.32	+ 0.90	+ 2.00	+ 3.16	- 0.44	- 4.71	- 1.44	+ 1.22	+ 2.62	+ 2.89	+ 6.49	+ 1.95
10. Paints & Varnishes	- 2.25	- 1.81	- 2.61	- 4.61	- 4.57	- 1.96	+ 2.73	+ 4.97	- 0.17	- 0.74	- 0.77	+ 2.25
11. Soap	- 3.40	- 4.14	- 5.72	- 5.04	- 7.12	- 7.09	- 4.08	- 3.52	- 2.45	- 2.32	+ 0.79	- 0.39
12. Tanning	+ 3.06	+ 3.39	- 0.17	+11.15	- 1.78	- 8.99	+ 0.85	+ 4.21	- 2.38	- 1.60	- 3.78	- 4.48
13. Cement	- 3.25	- 3.17	+ 0.09	+ 1.47	+ 3.16	- 0.56	+ 2.36	+ 4.53	+ 0.59	+ 2.04	+ 6.45	+ 1.28
14. Glass & Glassware	- 7.13	-17.72	-14.45	-21.11	-28.15	-27.75	-21.60	-21.71	-19.71	-15.29	-14.17	-18.52
15. Ceramics	- 2.04	- 5.03	- 6.02	- 3.74	-10.56	- 6.06	- 2.69	+ 6.48	-12.82	- 6.86	-10.18	-10.56
16. Plywood & teachests	+ 1.50	- 0.16	- 1.69	- 3.33	+ 0.32	+ 0.16	+ 2.79	+11.23	+ 2.66	+ 5.64	+13.52	+10.10
17. Paper & paperboard	- 1.74	- 5.83	- 3.78	- 3.47	- 5.90	- 4.35	+ 3.21	+ 4.29	+ 1.54	+ 0.62	+ 0.32	+ 2.33
18. Matches	+ 2.12	+ 6.75	- 0.16	+ 3.01	- 6.15	+14.83	+ 0.73	- 0.95	+ 0.46	+ 5.58	+ 7.78	+ 5.77
19. Cotton textiles	- 4.98	-12.97	-10.55	- 1.03	- 4.05	- 5.82	- 9.91	-12.11	- 5.80	- 5.32	- 6.62	- 1.84
20. Woollen textiles	+ 3.60	- 8.73	- 8.61	-14.22	-15.31	-18.63	-13.88	-18.05	-18.58	-16.17	-13.78	-14.70
21. Jute textile	+ 0.98	+10.89	+ 5.93	+ 7.63	- 2.17	- 7.00	+ 4.35	+ 7.71	-10.71	- 7.67	+ 2.97	+ 3.76
22. Chemicals	- 0.34	+ 1.32	- 3.37	- 3.66	- 3.50	- 2.82	- 0.32	- 0.34	- 0.83	- 1.39	- 1.16	- 3.33
23. Aluminium, copper & Brass	-14.77	-22.27	-17.18	-20.42	-20.60	-22.24	-20.08	-22.94	-23.57	-26.31	-29.60	-29.07
24. Iron and steel	- 4.25	- 4.42	- 8.49	- 6.64	- 3.85	- 1.08	+ 3.21	+ 3.75	+13.71	+ 3.03	- 2.76	+ 1.57
25. Bicycles	- 7.12	- 9.67	- 8.48	- 6.63	- 5.14	+ 0.29	- 1.64	+ 8.44	+ 9.34	+ 6.07	+ 2.36	+ 1.82
26. Sewing machines	+61.74	+ 9.85	+17.70	+19.01	+ 2.08	+23.19	+31.46	+26.93	+28.01	+22.13	+20.83	+15.19
27. Electric lamps	+ 3.62	- 2.79	- 1.75	- 4.39	+ 3.11	+ 4.75	- 1.59	+ 1.82	+ 3.03	+ 3.04	+ 6.22	+ 5.50
28. Electric fans	- 3.90	- 5.43	+ 6.72	+ 2.22	+ 3.75	+ 7.06	+ 7.55	+ 3.21	+ 0.79	+ 1.96	- 2.70	- 0.68

Source: Same as Appendix II-1.

APPENDIX III-3

Variations in Industry Weights with Respect to 1953

(in percentage points)

Industry	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Wheat floor	+0.1664	+0.1347	+0.1779	+0.2311	+0.2539	+0.3518	+0.0905	+0.0235	+0.0022	+0.0703	+0.2452	+0.0861
2. Rice milling	+0.2488	+0.4535	+0.4605	+0.3901	+0.0330	+0.0725	-0.0388	-0.1097	+0.0800	+0.0413	+0.1021	-0.0433
3. Biscuit making	+0.0012	-0.0248	-0.0161	+0.0831	+0.1394	+0.0448	+0.1143	+0.1204	+0.2156	+0.2038	+0.1400	+0.3270
4. Fruits & vegetables processing	-0.0072	+0.0006	-0.0271	+0.0005	+0.0136	-0.0369	-0.0298	-0.0275	+0.0266	+0.0608	+0.0405	+0.0576
5. Sugar	+1.3580	+0.8660	+0.4742	+1.8755	+1.6560	+0.4889	+0.7559	+1.1962	+0.1886	-1.4834	-1.1603	-0.7043
6. Distilleries & breweries	-0.0529	+0.0477	+0.0288	+0.1379	+0.1025	+0.1870	+0.0393	+0.1187	+0.0454	+0.0254	+0.3164	+0.4838
7. Starch	-0.0705	+0.0273	-0.0318	+0.0593	+0.0376	+0.0913	+0.0474	+0.0436	+0.0609	+0.0724	-0.0146	+0.1319
8. Veg.oils-Oil seeds crushing.	-0.3857	+0.3158	+0.3794	+0.2284	+0.3471	+0.5473	+0.3049	+0.3637	+0.0616	+0.2234	+0.1893	+0.7835
9. Edible hydrogenated oils	-1.2286	-0.5904	-0.7931	-0.6696	-0.4043	-0.1654	-0.2712	-0.5595	-0.6647	-0.7620	-0.9728	-0.6884
10. Paints & varnishes	+0.0735	+0.0390	+0.0785	+0.1942	+0.2049	+0.1324	-0.0141	-0.1244	+0.1341	+0.1772	+0.0881	-0.0277
11. Soap	+0.1124	+0.0800	+0.1431	+0.2454	+0.5766	+0.8181	+0.5464	+0.4576	+0.3208	+0.1954	-0.0379	-0.0977
12. Tanning	-0.0490	-0.0867	-0.0438	-0.0840	-0.0863	+0.1779	+0.0911	+0.0290	-0.0516	-0.0426	-0.0611	-0.0067
13. Cement	+0.3260	+0.1914	-0.1183	+0.0637	+0.0617	-0.1264	-0.1172	-0.1489	+0.2330	+0.1145	-0.3252	+0.3701
14. Glass & Glassware	+0.0521	+0.1536	+0.1442	+0.2858	+0.4586	+0.7483	+0.5643	+0.5096	+0.5333	+0.4891	+0.4580	+0.4756
15. Ceramics	-0.0646	-0.0484	-0.0176	+0.1103	+0.3605	-0.4222	-0.4160	-0.4844	-0.3819	-0.4345	-0.3501	-0.2682
16. Plywood & teachests	+0.0298	+0.1555	+0.1820	+0.2214	+0.1552	+0.2086	+0.1662	+0.0085	+0.1112	+0.1236	+0.0830	+0.2040
17. Paper & paperboard	+0.1006	+0.6011	+0.4654	+0.9351	+1.6022	+1.7124	+1.1727	+0.9866	+1.2446	+1.5620	+1.4783	+1.3847
18. Matches	-0.1329	-0.2933	-0.2249	-0.2325	+0.0400	-0.4590	-0.2155	-0.2462	-0.2838	-0.4448	-0.5427	-0.4753
19. Cotton textiles	-0.8252	-0.3559	-1.9561	-5.5450	-8.7109	-7.0163	-2.6500	-1.2764	-5.5797	-8.9959	-9.5961	-12.8978
20. Woollen textiles	-0.1705	-0.1362	-0.1965	+0.1291	+0.2006	+0.4141	+0.1674	+0.3347	+0.5978	+0.6449	+0.4421	+0.3111
21. Jute textile	-1.1917	-3.5599	-3.4210	-4.3093	-2.8458	-3.6935	-5.7742	-7.4139	-4.0697	-4.4917	-6.1041	-6.0354
22. Chemicals	-0.1543	-0.2925	+1.2165	+2.2650	+3.1487	+4.9591	+5.1638	+6.6863	+6.9642	+7.7598	+7.6798	+9.6253
23. Aluminium, copper & Brass	+0.6973	+1.4365	+0.8165	+1.3088	+1.4932	+0.9233	+0.8388	+1.0597	+1.3560	+2.1486	+2.8167	+3.0462
24. Iron and Steel	+1.1729	+0.4602	+1.9164	+1.3645	+0.1758	-0.9679	-2.0362	-2.8935	-2.1649	+1.4049	+3.9093	+2.3879
25. Bicycles	+0.2020	+0.3616	+0.4081	+0.5654	+0.6073	+0.5854	+0.8742	+0.5881	+0.6109	+0.7345	+0.8254	+0.9578
26. Sewing machines	-0.1518	+0.0305	+0.0462	+0.1186	+0.3744	+0.0035	+0.0756	+0.0138	+0.0560	+0.0615	-0.0981	+0.0336
27. Electric lamps	+0.0036	+0.0317	+0.0442	+0.0758	+0.0213	+0.0291	+0.0820	+0.0879	+0.1194	+0.1468	+0.1021	+0.1361
28. Electric fans	-0.0588	+0.0020	-0.1448	-0.0480	-0.0264	+0.1225	+0.4489	+0.3780	+0.2348	+0.3956	+0.3179	+0.4423

Source: Same as in Appendix II-1.