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Policy and Poverty, Part 2

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by

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IV The Limitation on Economic Growth

An arithmetically feasible program of radical income equalization depends critically upon the rate of growth of aggregate output. If output does not grow fast enough then the path to income equalization, or even the path to a much more modest goal, the elimination of poverty, can be blocked.

There are factors which can reduce the rate of growth of output, even if full employment is maintained. To a large extent the growth in overall output per capita has been the result of differing rates of growth in productivity in the various sectors.[1/] If the output of sectors with high or rapidly increasing labor productivity is growing fast enough, so that their total employment increases, then total output will tend to grow rapidly. If the output of such sectors is growing slowly, so that the labor force in these sectors is declining, then overall growth in output will be slowed.

Thus in our model rapid growth is compounded of two elements - rapid rates of increase in productivity in some sectors and increases in employment in these progressive sectors. If factors are operative which tend to increase rapidly the labor force allocated to

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1/ An alternative growth model posits that there are two sectors - a high and a low productivity sector. Both of these sectors are stagnant, productivity in each sector remains constant but output grows as a result of labor shifting from the low to the high productivity sector. Obviously in such a world in time growth ceases once all labor is in the high productivity sector.

sectors where productivity grows slowly then the rate of growth of output would tend to decline. It may very well be that the current need for improvement in the urban service sectors is such a growth reducing factor.

Baumol [1/] has made precise, within a simple two sector growth model, some of the implications of unbalanced growth in productivity. He postulates the existence of two sectors - one technologically progressive, the other technologically stagnant. In the progressive sector output per standard laborer grows exponentially, in the stagnant sector output per standard laborer remains constant. For the growth of income and the movements of the price level to be determined, it is necessary to make precise assumptions about the assignment of labor and relative wages in the two sectors.

The Baumol model consists of two sectors, a stagnant sector in which labor productivity does not grow at all and a progressive sector in which productivity grows at a constant exponential rate given by e^{rt}. Thus in the stagnant sector

1) $Y_{st} = aL_{st}$ and in the progressive sector

2) $Y_{pt} = bL_{pt}e^{rt}$. In addition wages grow at the same rate as productivity in the progressive sector,

3) $W_t = W_o e^{rt}$. The wage behavior assumption is not

1/ William J. Baumol opcit

necessary, excepting that it enables us to make precise statements about the behavior of the price level.

The implications of these assumptions can be stated in four theorems. 1/

Theorem 1. The cost per unit of output in the stagnant sector C_s, will rise without limit while C_p, the unit cost in one progressive sector, will remain constant.

$$C_{st} = \frac{W_t L_s}{Y_{st}} = \frac{W_o e^{rt} L_{st}}{aL_{st}} = W_o e^{rt}/a \rightarrow \infty \quad \text{as } t \rightarrow \infty$$

$$C_{pt} = \frac{W_t L_{pt}}{Y_{pt}} = \frac{We^{rt} L_{pt}}{bL_{pt} e^{rt}} = W/b$$

$$CS/C_p = \frac{We^{rt}/a}{W/b} = \frac{b}{a} e^{rt} \rightarrow \infty \quad \text{as } t \rightarrow \infty$$

Theorem 2. There is a tendency for the outputs of the stagnant sectors whose demands are not highly inelastic with respect to price or elastic enough with respect to income to decline and perhaps ultimately, to vanish.

Suppose elasticity of demand with respect to price and income was such that $C_s Y_s / C_p Y_p = \frac{We^{rt} L_{st}}{W L_{pt} e^{rt}} = L_{st}/L_{pt} = A$ (a constant)

hence $Y_s/Y_p = \frac{aL_{st}}{bL_{pt} e^{rt}} = \frac{a}{be^{rt}} A$

1/ Baumol pp. 417 - 419

$$= \left| \frac{a}{be^{rt}} A \right. = 0$$

$$t \to \infty$$

This vanishing is a ratio effect, not $c \to o$ as $t \to \infty$, but rather that the output of the stagnant sector is constant. The value of output in the stagnant sector remains a constant ratio to value produced in the progressive sector.

Theorem 3. If the ratio of the output of the two sectors is held constant, more and more of the labor force must be allocated to the stagnant sector and the amount of labor in the progressive sector will tend to approach zero.

Corallory. If the labor force is growing, a larger and larger percentage of the labor force will be assigned to the stagnant sector.

$$\frac{Y_s}{Y_p} = \frac{aL_s}{bL_p e^{rt}} ; \frac{bY_s}{aY_p} = \frac{L_s}{L_p e^{rt}} = K ; L_s = L_p e^{rt} K ; L_p =$$

$$L = L_s + L_p$$

$$L_s = L - L_p = L - \frac{L_s}{Ke^{rt}} ; L_s = (L - L_s) Ke^{rt} ; L_s = LKe^{rt} / 1 + Ke^{rt}$$

$$L_s = \frac{L}{1 + 1/Ke^{rt}} ; \left| \frac{L_s}{t \to \infty} \right. = L$$

$$L_p = L - L_s = L - L \frac{Ke^{rt}}{1 + Ke^{rt}} = \frac{L}{1 + Ke^{rt}}$$

$$L_p = \left| \frac{L}{1 + Ke^{rt}} \right. = 0$$

$$t \to \infty$$

Theorem 4. An attempt to achieve balanced growth in a world of unbalanced productivity must lead to a declining rate of growth relative to the growth in the labor force. In particular if productivity in one sector and the total labor force remain constant the growth rate of the economy will asymptotically approach zero.

$$I = B_s Y_s + B_p Y_p = B_s a L_s + B_p b L_p e^{rt}$$

(I = index of output)

$$I = \frac{B_s a L K e^{rt}}{1 + K e^{rt}} + \frac{B_p b e^{rt} L}{1 + K e^{rt}} = \frac{L(K b_s a + B_p b) e^{rt}}{1 + K e^{rt}}$$

$$R = L(K B_s a + B_p b)$$

$$I = \frac{R e^{rt}}{1 + K e^{rt}}$$

$$dI/dt = R\left[\frac{(1 + K e^{rt}) r e^{rt} - e^{rt} K r e^{rt}}{(+ K e^{rt})^2}\right]$$

$$\frac{R r e^{rt} (1 + K e^{rt} - K e^{rt})}{(1 + K e^{rt})^2}$$

$$= r R e^{rt} / (1 + K e^{rt})^2$$

$$\frac{dI/dt}{I} = \frac{r R e^{rt} / (1 + K e^{rt})^2}{R e^{rt} / (1 + K e^{rt})} = \frac{r}{1 + K e^{rt}}$$

$$\left| \frac{dI/dt}{I} \right|_{t \to \infty} = \left| \frac{r}{1 + K e^{rt}} \right|_{t \to \infty} = 0$$

Corallory.. If balanced growth is sustained in a world of unbalanced technology and money wages rise at the rate of increase of productivity in the progressive sector, then the rate of increase of prices will approach the rate of increase of productivity.

The G.N.P. deflator P equals money gross national product dividend by output.

$$P = \frac{C_s Y_s + C_p Y_p}{} = \frac{Poe^{rt}aL_{st} + Pobe^{rt}L_{pt}}{\frac{Re^{rt}}{1 + Ke^{rt}}}$$

$$P_t = \left(\frac{1 + Ke^{rt}}{R}\right) Po \quad (aL_{st} + bL_{pt})$$

$$P_t = Po/R \; (aL_{st} + bL_{pt}) \; (1 + Ke^{rt})$$

$$\frac{dP}{dt} = \frac{Po}{R} \; (aL_{st} + bL_{pt}) \; Kre^{rt}$$

$$\frac{dP}{dt}/Po \quad = \frac{Kre^{rt}}{1 + Ke^{rt}} = \frac{r}{1 + 1/Ke^{rt}}$$

$$\text{at } t = o, \; \dot{p}/p = \frac{K\,r}{1 + K} = \left(\frac{\frac{bY_s}{aY_p}}{\frac{a\,Y_p + bY_s}{aY_p}}\right) r \quad = \frac{bY_s}{a\,Y_p + bY_s}\, r$$

$$\text{at } t \to \infty \quad \frac{\dot{p}}{p} \to r$$

If the technologically progressive sector is commodity production and the technologically stagnant sector is the service and particularly the government sector then the Baumol model has a certain charm as a tool for interpreting current problems and recent history. The early postwar period witnessed a veritable explosion in commodity production, and the income and price elasticities of demand were such that a relative growth of commodity production took place, to the neglect of the publically supplied amenities and services. The starving of the public sector under the conditions of the 1950's was one of the themes of Galbraith's Affluent Society - a volume which also announced the elimination of all but pocket and case book poverty.

The easy identification of services with low productivity growth and commodity with high productivity growth should not be carried too far. In the process sketched in the theorems, a relative price ratio can develop at which the mechanization of service production becomes feasible. The development and proliferation of car washing machines and the coming substitution of the labor economizing telephonic facsimile printer for the mailed letter are examples. The relative rise in the cost of postal services, particularly the impossibility of substituting machines for the human reader of human scrawls, implies that in the not too distant future the facsimile transmission of personal mail over telephonic wires will be cheaper than the present mail system in urban centers.

The wiring of our households with facsimile receivers and transmitters, newspaper printing devices and wired television is already feasible - and would increase labor productivity in what now seems like a set of chronically stagnant sectors.

Thus the labor assigned to income elastic-price inelastic technologically stagnant sectors of the economy may grow, but the rise in relative prices, the ever rising portion of gross national product spent on these sectors will act as a lure to the introduction of new techniques. This implies that whenever the production of a labor intensive apparently income elastic commodity or service draws an increasing volume of employment, there exists a real challenge in terms of the potential pay off from particular technological changes. Thus job elimination, reminiscent of the substitution of automatic for manual elevators, can be expected to occur.

The message is that the process sketched by Baumol does change relative prices and tend to drive certain productions, especially those that are not especially income elastic or price inelastic, out of the market. For the income elastic and price inelastic stagnant sectors the growth of employment and income produced in the sector serves as a lure for technical progress. Thus the drag to growth and the stimulus to accelerated increases in price levels from Baumol's disease should not be viewed as a necessarily permanent affair but rather as a recurrent "stage" which leads to cycles in the

growth of an economy.

Baumol's model shows us that there is a lure to technical progress in changing relative prices and to factor allocations, but there is no guarantee that the progress will occur. First there may be temporary - or even long run - blocks due to knowledge and engineering problems.

Education and perhaps some aspects of police work (which may be one aspect of education under consideration i.e. custodial care of children) seem to require a fixed high labor input per unit of output. The custodial aspect of hospital care - bed pans and alcohol rubs - remain labor intensive - and the sophisticated aspects of medical care are also labor intensive. Thus there will at any time be a core of labor intensive price inelastic income elastic services which will be the essential drag to output growth.

In addition there will at any time be beaurocratic or institutional blocks to technical progress. The railways, public mass transportation and the postal system are three examples that readily come to mind where the vested interests of labor and management combine to continue traditional ways of doing things. At present the vested interests of the over the air broadcasters and the regulating authority are standing the the way of progress in the direction of the "wired city" which, in combination with facsimile transmission and electronic printers, will be the solution to the labor intensive distribution of much of the printed matter.

The relative size and the relevant elasticities of output of the technologically and institutionally recalcitrant sectors will determine the rate of growth of the economy. At some periods the stagnant sectors - becuase of a recent breakthrough - will be relatively small so that the rate of growth of real G.N.P. will be high. At other times they will be large so that the rate of growth of real G.N.P. will be small.

With the rate of growth of G.N.P. a variable depending upon technological and institutional time dependent variables, the viability of a trickle down or share the growth policy philosophy toward poverty is also variable. In periods when G.N.P. grows rapidly even a small bias in the distribution of income in form of the lower income population can result in a sharp rise in their income. For example if the top 20% have 50% of the aggregate income and the bottom 20% have 5% of the income, a shift of 1% of the top 20%'s income to the bottom 20% of the population can result in a 10% growth in the income of the bottom 20%. If G.N.P. per capita is growing say at 5% per year then the income of the top group can grow at 4% while the income of the bottom group can grow at 15%. If growth in per capita income slows to 1% per year, then by holding the top group fixed an 11% growth in the income of the bottom group can be achieved. In an environment where the median income group's growth in income is restricted to 1% a year any attempt to redistribute in favor of the bottom group will be associated with considerable social friction.

As an aside - and the slowdown in income growth of the median income groups was mainly due to factors associated with the war in

Vietnam rather than those identified as Baumol's disease, the Wallace phenomena and the more active resistance to Negro demands occurred during a period in which the real income of the industrial wage earner may have been stagnant due to inflation. If the blue collar worker's real income is rising at some 3% per year, then he will perhaps believe that there is enough here for all of us chickens and accept the integration of Negores into the labor force and efforts to improve the relative lot of the Negro. However halt his progress - and the resistance to income distribution efforts will increase.

But to return to the major theme: if income distribution is the name of the game, and if the distribution of income is to be "rectified" by biasing the distribution of growth, then it is necessary for the overall growth rate to be sufficiently high so that a substantial growth in income for all except perhaps the very top can be sustained. If Baumol's disease is in one of its more virulent phases - due perhaps to beaurocratic and institutional as well as to technological reasons - then the potential for biasing growth in disposable income is diminished. Under these circumstances we could expect more virulent opposition to income redistribution as well as more persistence demands for change.

Note also that the beaurocratic resistance to change may be reinforced by slow growth. If the prospects for improvement are not all that great there will be an intensified effort to protect what one has. Britain may be a prize example of this phenomena.

IV. Appendix: An Arithmetic Example of Baumol's Disease

Assume that final demand is such that the "physical" output of the two sectors is equal at all times. Thus workers will be shifted from the technologically progressive sector to the technologically stagnant sectors. Assume that wages are set in the progressive sector and that wages determine prices so that the nominal price per unit of the output of the progressive sector remains constant. Wages are the same in the two sectors, thus the price per unit of output in the stagnant sector rises at the same rate as productivity increases. It is clear that as this process continues, the labor force will be switched from the progressive to the stagnant sector, the growth rate of output will decrease and the rate of increase in the price level will asymptotically approach the rate of increase in productivity.

Let us assume that initially we have 200 workers, 100 assigned to each sector. Wages equal $1 per period in both sectors, the value of output is $200 per period. Output per man hour grows at 6% per period in the progressive sector. In order to keep output the same in the two sectors, some three workers are shifted from the progressive to the stationary sector for the second period. Wages now equal $1.06, output in each sector is 1.03, the total value of output is $212.18, the growth rate of output is 3%, and the price index has risen from 100 to 103.

If 150 workers are assigned to the stagnant sector and 50 to the progressive sector then the output per man in the progressive sector will need be 3 times the output of the first example. In this case wages will be $3 per period and total output is 300 units. The value of output in the stagnant sector is $450, in the progressive sector it is $150, so that G.N.P. is 600. The price level is 2.0. Labor productivity in the progressive sector grows at a 6% rate, so that at the end of 1 period productivity in the progressive sector is 3.18. As a result 2.15 workers will need be shifted to the stagnant sector, the wage rate will rise to $3.18 and the value of output in the progressive sector is $152.15 and in the stagnant sector it becomes $483.85. Real output has grown from 300 to 304.3 or approximately 1.5%. The money value of income produced rises to $636.00 so that G.N.P. deflator rises from 2.0 to 2.09, i.e. by $4\frac{1}{2}$%.

In the third case the initial conditions are ten workers in the progressive sector and 190 in the stagnant sector. The productivity in the progressive sector is now 19 times as great as in the stagnant sector so that output is 190 in each sector, real G.N.P. is 380. Market value of G.N.P. is $3800 so the price level is 10.0. After one period some .54 workers need be shifted to the stagnant sector to maintain equality of output in the two sectors. The real value of G.N.P. rises to 381.08, real growth is some .3 of 1%. The wage rate rises to 20.14, market value of output is 4,028. The price level is 10.57; a 5.7% increase in prices has taken place.

V The Stability, Perhaps Perversity, of Relative Wages

The distribution of income from work depends upon relative wages. In the original poverty numbers a large percentage of those in poverty worked full time during the year. If the distribution of relative wages can be affected by policy or by the behavior of the economy, then the possibility exists that poverty can be eased by relative wage changes.

Note that income from work is only a part of total income, that the overall income distribution includes income from property (interest and profits) and capital gains in excess of price level increases. During the period under consideration, the sixties to date, there was a run up of corporate profits after taxes and sizeable capital gains resulted from the run of success the economy experienced. 1/ These factors tended to bias the distribution of the increments of income toward the wealthier. However, the distribution of income from property, or even the share of income going to property is not of special interest to the poor and not well off portions of the population: their income is derived from work and for their income to gain on the average income it must first improve relative to other incomes from work.

A simple model of "high" wage and "low" wage industries, in which, in order to be selective, high wage industries attempt to keep their wages at a premium over other wages during a period of normal slack

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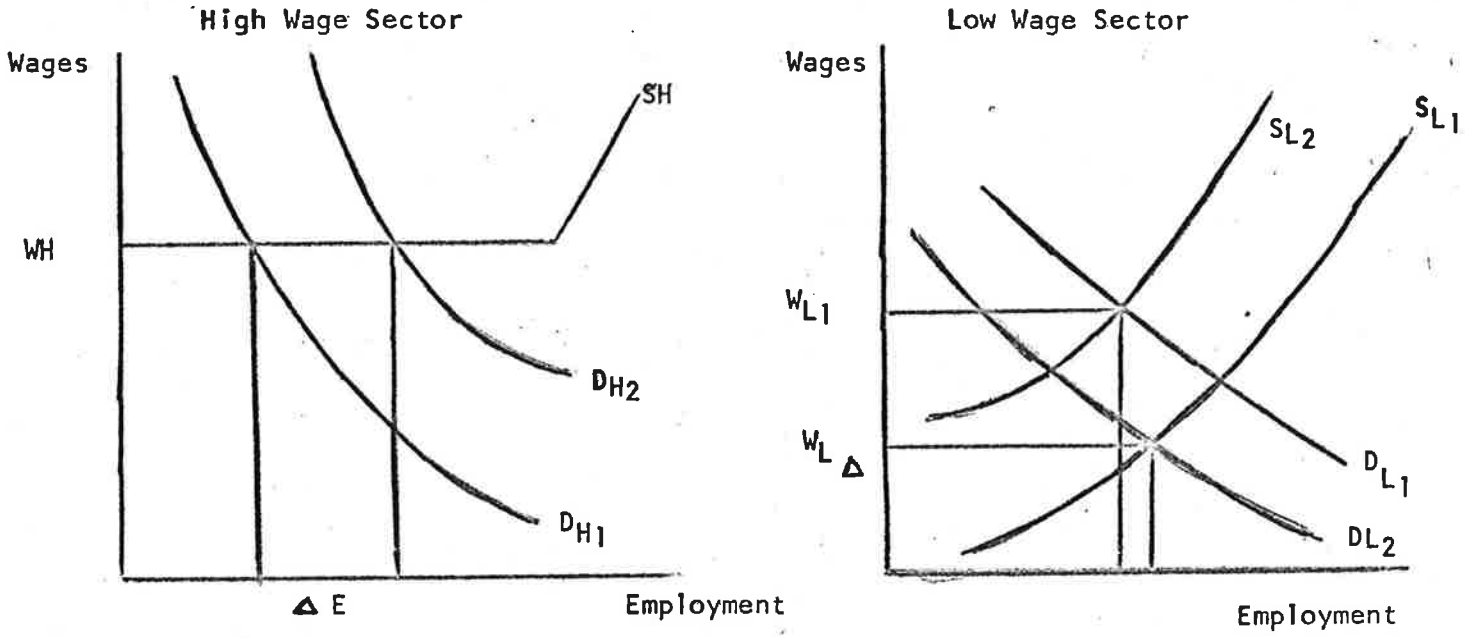
1/ The argument that a rise in investment relative to income leads to a rise in the ratio of profits to income is closely identified with Kaldor. See N. Kaldor "Alternative Theories of Distribution" Review of Economic Studies, 1955-56.

in the labor market, indicates that in a period of tightening labor markets low wages will tend to rise more rapidly than high wages. The high wage sector sets a money wage W_H so that its supply of

DIAGRAM 1

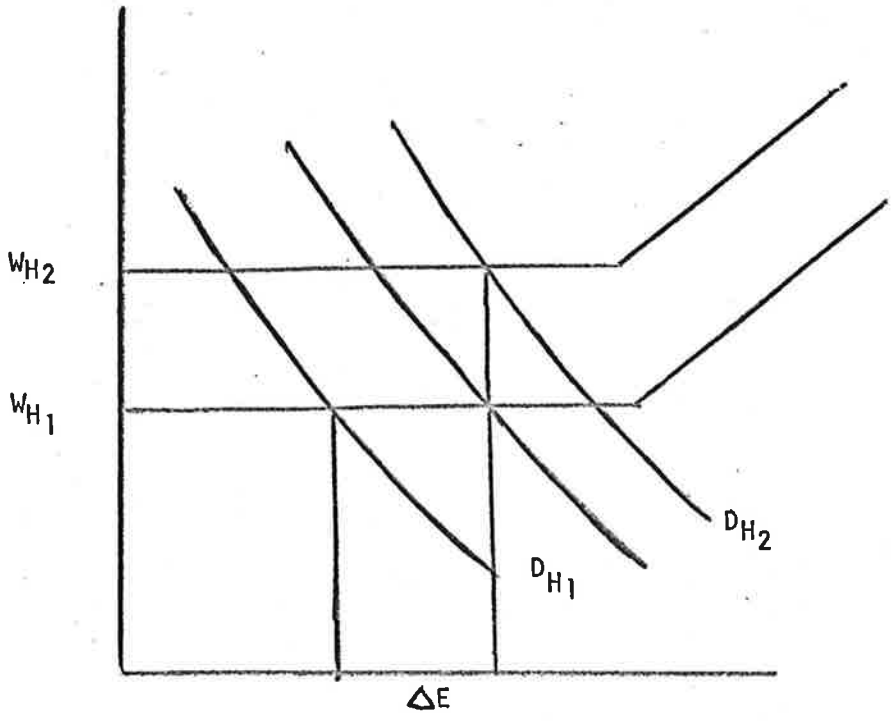


labor is infinitely elastic at this wage. A rise in demand increases employment, at an unchanged money wage. The supply schedule of labor to the low wage sector is some market supply curve minus employment in the high wage sector. A rise in employment in the high wage sector shift the supply curve of the low wage sector to the left, S_{L_1} shifts to S_{L_2} ; the rise in overall demand that shifted the demand curve for labor in the high wage sector up also shifts the demand curve for labor in the low wage sector to the right. Thus wages in the low wage sector rise from W_{L0} to W_{L1}, and given an

invariant wage in the high wage sector W_H the ratio of low to high wages rises.

An alternative model, using the same format, would have W_H as some ratio to low wages. If the high wages are in "administered" industries then the price of the product could be set as some mark up on wages. In this case a rise in W_H will also shift D_H up by the same amount. Thus in Diagram 11, the rise to W_{H2} and D_{H2} means that the change in employment OE remains the same, but the relative wages of high and low wage workers has remained unchanged.

DIAGRAM 11



If the model of Diagram 1 is relevant then a protracted period

of full employment, and in particular, a period of relatively tight full employment, such as we have witnessed since 1965, should result in a narrowing of the spread among wages. It also means that sustaining full employment would be a weapon for the elimination of poverty above and beyond its impact on the unemployed and the underemployed. If the model of Diagram II is relevant then no improvement in the status of the low wage worker can be expected from high employment aside from that due to the rise in employment.

In the 10 years 1959 through 1968 the total number of persons in poverty fell from 38.9 million to 22.0 million. In the 8 years from 1960 through 1967 the percentage of white families living in poverty fell from 18.1% to 10.2%; the percentage of non-white families living in poverty fell from 55.1% to 35.3%. Even though some of the credit may go to various training and community action programs, the decline in poverty seems most closely related to the rise in employment, including the increase in the armed forces.

The impact of tight labor markets upon the population in poverty seems clearest when attention is focused upon the non-whites in poverty. In 1960 some 55.1%, in 1963 some 50.9%, in 1966 some 40.0% and in 1967 some 35.3% of non-white families were living in poverty. In 1960 the overall unemployment rate was 5.5%, in 1963 the unemployment rate was 5.7%, in 1966 and 1967 the unemployment rate was 3.8%. Between 1960 and 1967 the armed services increased by more than 900 thousand and "civilian" employment by more than 8 million. It seems

evident that the benefits to the non-white from the sustained prosperity lagged behind the benefits to the whites.

It was only after the overall unemployment rate was lowered from the neighborhood of 5.5% to the neighborhood of 4% that an appreciable dent was made in the proportion of non-whites in poverty.

Table I

Employment, Armed Forces, Unemployment Rates and the Population in Poverty

Year	Employment*	Δ Employment	Armed Forces*	Δ Armed Forces	Δ Forces + Employment	Unemployment rate*	Incidence of Poverty** Persons in Families & Unrelated Ind. in Poverty (millions)					
							Total		White		Non-White	
							#	%	#	%	#	%
1958	63,036	--	2,636			6.8	--	--	--	--	--	--
1959	64,630	1,594	2,552	-84	+1510	5.5	38.9	22.1	28.2	18.0	10.7	54.6
1960	65,778	1,148	2,514	-38	+ 1110	5.5	40.1	22.3	28.7	18.1	11.4	55.1
1961	65,746	-38	2,572	+58	+20	6.7	38.1	21.0	26.5	16.5	11.6	55.4
1962	66,702	956	2,828	+256	+ 1212	5.5	37.0	20.1	25.4	15.6	11.6	54.2
1963	67,762	1,060	2,738	-90	+ 970	5.7	35.3	18.9	24.1	14.6	11.2	50.9
1964	69,305	1,543	2,739	+1	+ 1,544	5.2	34.3	18.1	23.4	14.0	10.8	48.6
1965	71,088	1,783	2,723	-16	+ 1,767	4.5	31.9	16.7	21.4	12.7	10.5	46.4
1966	72,895	1,807	3,123	+400	+ 2,207	3.8	28.8	14.9	19.5	11.5	9.3	40.0
1967	74,372	1,477	3,446	+323	+ 1,800	3.8	25.9	13.3	17.6	10.2	8.3	35.3
1968	75,920	1,548	3,535	+ 89	+ 1,637	3.6	22.0	--	--	--	--	--

Sources: * Economic Report of the President, January 1969, Table B-22, p. 252.

** Current Population Reports: Consumers Income Series P-60 #55, August 1968, Table 2: Incidence of Poverty

From the evidence in Table I it seems clear that the rise in employment (including the rise in the armed forces) can be used to explain the decline in the population in poverty. The war on poverty has in effect followed an employment strategy--although the initial gains in employment were not distributed so as to achieve a maximum impact upon the population in poverty. The employment strategy actually followed was not efficient either in terms of the initial impacted population or the bundle of goods produced with respect to the goal of ending poverty. The power of adequate employment opportunities is perhaps made clear by the success in decreasing poverty of even the poorly designed employment program that in fact was implemented. We can only conjecture at the impact that a high employment policy especially designed to reduce poverty would have upon the population in poverty.

Tighter full employment can help the poor in three ways: by moving a family from unemployed to employed status, by eliminating short time and partial unemployment and by raising relative wages. The available evidence indicates that there has been no improvement in the distribution of income from work, relative wages have not improved over the long expansion of the 1960's and over the longer run (since the end of World War II) the evidence indicates that a deterioration in relative wages has occurred.

Table II shows the distribution of relative weekly wages in various manufacturing industries mining, construction and trade. The data are summarized in Table III. At the end of World War II the distribution

Table II

Average Weekly Earnings as a Ratio to Average Weekly Earnings in Manufacturing: 1948, 1953, 1960, 1966, 1967

Industry	1948	1953	1960	1966	1967
Mining	1.234	1.178	1.175	1.158	1.186
Contract Construction	1.228	1.226	1.259	1.293	1.338
Ordnance & Accessories	1.078	1.108	1.208	1.209	1.182
Lumber & Wood Products	0.896	0.862	0.821	0.825	0.837
Furniture & Fixtures	0.919	0.893	0.838	0.813	0.816
Stone, Clay & Glass Products	1.001	0.995	1.031	1.018	1.025
Primary Metal Industries	1.151	1.198	1.221	1.230	1.192
Fabricated Metal Products	1.060	1.085	1.096	1.084	1.073
Machinery	1.136	1.173	1.165	1.202	1.183
Electrical equipment	1.026	1.000	1.011	0.969	0.969
Transportation equipment	1.162	1.210	1.242	1.267	1.233
Instruments & related products	0.989	1.030	1.040	1.010	1.018
Miscellaneous manufacturing	0.904	0.873	0.827	0.791	0.802
Food & Kindred products	0.920	0.901	0.959	0.925	0.940
Tobacco manufactures	0.689	0.675	0.723	0.758	0.762
Textile mill products	0.822	0.754	0.708	0.731	0.733
Apparel & related products	0.822	0.691	0.627	0.613	0.636
Paper & allied products	1.030	1.019	1.060	1.063	1.069
Printing and publishing	1.226	1.167	1.147	1.092	1.096
Chemicals & allied products	1.041	1.053	1.150	1.118	1.122
Petroleum & related products	1.304	1.282	1.322	1.288	1.330
Rubber & plastic products	1.004	1.031	1.031	0.995	0.987
Leather & leather products	0.773	0.722	0.674	0.667	0.687
Wholesale trade	1.009	0.978	1.011	0.990	1.013
Retail trade	0.784	0.705	0.695	0.611	0.617

Source: Computed from Manpower Report of the President. Table C-6, "Gross Average Weekly Earnings of Production or Non-Supervisory Workers on Payrolls of Selected Industries Annual Averages".

Table III

Distribution of Relative Wages (all manufacturing = 100)

Average Weekly Earnings in 21 Manufacturing Industries, Mining, Construction, and Trade
1948, 1953, 1960, 1966, 1967

Weekly wage as a percent of wage in all manufacturing	Number of Industries				
	1948	1953	1960	1966	1967
125.0 +	1	1	2	3	2
115.0 - 124.9	5	6	6	5	5
105.0 - 114.9	3	3	3	3	4
95.0 - 104.9	7	6	6	5	5
85.0 - 94.9	4	4	--	1	1
75.0 - 84.9	4	1	3	4	4
65.0 - 74.9	1	4	4	2	2
-- - 64.9			1	2	2

Source Table II

Table IV

Coefficients of Variation of Hourly and Weekly Earnings
1960 - 1967

Year	Hourly Earnings			Weekly Earnings		
	Total	Excluding Finance	Excluding Finance & Trade	Total	Excluding Finance	Excluding Finance & Trade
1960	23.42	24.12	18.69	25.78	26.52	19.86
1961	23.22	24.05	18.45	26.33	27.15	20.07
1962	22.66	23.33	18.57	25.81	26.61	19.38
1963	21.89	22.82	17.99	25.82	26.68	19.28
1964	22.10	22.85	18.55	26.39	27.08	20.17
1965	22.68	23.49	19.45	27.32	28.13	20.68
1966	21.58	22.39	18.29	27.67	28.48	20.09
1967	21.75	22.52	18.52	27.76	28.55	20.45

of weekly wages was closely bunched around the average for all manufacturing, some 7 industries fell into the 95.0%-104.9% of all manufacturing range, some 14 industries fell in the range between 85% and 114.9% of all manufacturing. In 1948, for only one industry was the average income more than 125.0% of the all manufacturing range, for only one industry was the weekly wage less than 75% of the average weekly wage.

In the postwar period a thinning out of the mid-range of weekly wages occurred. In 1960 only 6 industries were in the 95.0% and 104.9% range and only 3 more were in the 105%-114.9% range, the 85.0%-94.9% range was empty. In the period since 1960 a further widening of the range has occurred, so that in 1967 only 5 industries remain in the 95.0% to 104.9% range, two industries are in excess of 130% of all manufacturing and two are less than 65% of all manufacturing. In 1948 the lowest wage (Tobacco manufacturing) was 68.9% of the average and the highest wage (Petroleum and related products) was 130.4% of all manufacturing. In 1967 retail trade was 61.7%, apparel and related trades was 63.6%, while contract construction was 133.8% and Petroleum and Related products was 133.0% of the average of all manufacturing.

Thus it seems as if the post World War II period has seen a dispersion of relative wages and the tighter labor markets of the late 1960's did not lead to a narrowing of the range. Of course, in 1968 labor markets were even tighter than in 1967, and perhaps a

narrowing of the range did occur. However the hope that a little more will make a big difference seems like a weak reed for an economic policy to lean on.

The coefficient of variation is the standard deviation divided by the arithmetic mean. It is a "deunitized" measure of dispersion. Over the extended expansion of the 1960's the coefficient of variation of hourly earnings exhibited some decrease whereas the coefficient of variation of weekly earnings showed some increase. This means that whereas relative hourly wages tended to draw together, overtime and layoffs tended to widen the distribution of income. Over this period of sustained prosperity and tightening full employment, the behavior of hourly rates conformed to the model in which extended prosperity narrows the range of wages but the changes in hours worked offset this tendency so that the range of weekly earnings widened.

It is worth noting that the distribution of hourly earnings is not as dispersed as that of weekly earnings, that the dispersion is relatively narrow when finance and trade are excluded and that for both hourly and weekly earnings--but especially for hourly earnings--the coefficient of variation excluding Finance and Trade did not exhibit much of a trend. Thus we can infer that in the relatively more highly unionized manufacturing, mining and construction sectors the dispersion of wages did not change much over the decade. In addition the differential between hourly wages in trade and finance and in manufacturing narrowed over the decade while the differential in weekly wages widened.

The evidence from the coefficients of variation is consistent with the evidence from the analysis of the behavior of relative wages by industry. The period of the 1960's did not see any narrowing of the spread of wages. If such a narrowing had taken place the income of the low wage Retail trade and Apparel workers would have been substantially higher. For example if these workers received 80% rather than 62% or 64% of all the manufacturing average, their income would have been about 30% higher and the number of families in a close to poverty would have been appreciably reduced (some 10 million workers are in the 4 sectors in which income is less than 75% of the average in all manufacturing.) compared to the actual 1967 situation.

Thus the labor markets as they behaved during the 1960's did not tend to reduce the inequality of incomes as unemployment rates were lowered and kept low. Thus one possible benefit from a full employment policy did not appear. Relative wages were either sticky or perverse. The question is open whether some alternative form of labor market behavior and organization would lead to a different pattern of relative wage and income changes during periods of economic expansion. As things stand we must plan policy on the assumption that the pattern of relative wages is stable, and that if the pattern is to be changed some institutional changes will be needed.