THE INFLATIONARY EFFECTS OF PUBLIC SERVICE EMPLOYMENT

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16. Abstracts

In this paper the authors consider the capability of local government to expand employment of low-skilled workers. They present a profile of workers in large American metropolitan areas who earned less than $4,500 in 1966 and then describe jobs provided by city government in Oakland and San Francisco, California, which could be held by such people. The problem of defining and estimating feasible expansions of "useful" city employment is discussed. Their results indicate that employment in the cities studied could be expanded 10-15% in low-skilled categories without severe disruption, costly additional inputs, and obvious "makework". The relation between the number of jobs potentially available and the supply of low-skilled workers is investigated.

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Introduction

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"The Inflationary Effects of Public Service Employment," by Philip Cook and Robert Frank is one of the reports submitted to the Manpower Administration of the U.S. Department of Labor by members of a research group at Berkeley concerned with the design and impact of public service employment programs. We use the term "public service employment program" to refer to any policy designed to combat urban poverty through use of Federal subsidies to increase employment of disadvantaged workers.

In this paper Frank and Cook employ a carefully constructed labor market inflationary potential of public service employment expansions. Using this model they demonstrate that any program which alters the composition of employment in favor of low-wage, high-unemployment labor force groups is anti-inflationary in the sense of causing a lower rate of wage inflation to be associated with a given unemployment rate. Frank and Cook then employ data from twelve large SMSA's in conjunction with their model in support of a challenge to the conventional position that wage inflationary pressures will be minimized if public service employment expenditures are distributed geographically in accordance with unemployment rates. In its place, they offer the suggestion that an expenditure distribution formula based on population size may be least inflationary.

Readers interested in other aspects of public employment programs may wish to consult some or all of the other project reports. These include

"The Effect of Legitimate Opportunities on the Probability of Parolee Recidivism" by Philip Cook

"An Expanded Public Service Employment Program: Some Demand and Supply Considerations" by Frank Levy and Michael Wiseman

"Public Service Employment and the Supply of Labor to the Private Sector" by Robert Frank

"A Proposal to Improve the Design of the Public Employment Program" by Laurence Seidman

"The Public Employment Program in San Francisco" by Michael Wiseman

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TABLE OF CONTENTS

THE INFLATIONARY EFFECTS OF PUBLIC SERVICE EMPLOYMENT

Philip J. Cook and Robert H. Frank

Summary and Conclusions

In this paper the inflationary effects of a large-scale job creation program targeted at disadvantaged workers are analyzed. It is assumed that the job creation program will change the structure of unemployment by reducing the ratio of unskilled to skilled unemployment rates. A theoretical model is presented in which it is shown under certain plausible assumptions that this structural change in unemployment rates will shift the aggregate Phillips curve in a favorable direction: There will be less inflationary pressure associated with any given aggregate unemployment rate. The same model is then used to characterize the least inflationary geographic distribution of funds under a federal job creation program. Wage statistics for 12 large SMSA's are calculated from the 1967 Survey of Economic Opportunity and are used to demonstrate in the context of the model that funds should not be distributed so as to equalize city unemployment rates. The authors suggest, in fact, that a distribution scheme based only on relative population size may well be less inflationary than a scheme designed to achieve unemployment "equality."

THE INFLATIONARY EFFECTS OF PUBLIC SERVICE EMPLOYMENT

Philip J. Cook and Robert H. Frank

During the postwar period in the U.S., monetary and fiscal policy instruments have proved inadequate for the task of achieving an acceptably low unemployment rate while avoiding engendering inflationary pressures. A possible explanation for this failure lies in the heterogeneity of the American labor force - skilled, white adult males consistently exhibit a relatively low unemployment rate, while other groups (women, blacks, and particularly teenagers) suffer from much higher rates of unemployment.

Aggregate demand expansion induces inflationary pressures on the wage paid to white adult males long before the unemployment rates of other groups are reduced to anything like a full employment level. The fact that these groups make up an increasing percentage of the labor force may help to explain the apparent outward shift of the Phillips curve during recent years (see G. Perry); certainly the structural problems inherent in U.S. unemployment must be viewed with increasing concern.

Aggregate demand policy instruments cannot be used to attack these structural problems. An alternative to the policy of aggregate demand expansion, which increases the demand for all categories of labor, is a more selective policy which will increase demand only for those specific categories of workers who suffer high unemployment rates. Direct government employment of workers in such categories is perhaps the simplest policy of this type. A carefully designed program of public service employment can bid selectively for the services of workers who are not in fully employed skill categories; to a large extent, it can specifically avoid bidding for the services of workers already in

short supply and is thus able to effect an expansion of employment without generating the kind of inflationary pressure on wages and prices which has so troubled the American economy during the past five years.

This report presents a formal derivation of the relationship between the structures of wage and unemployment rates on the one hand and the rate of aggregate wage inflation on the other (Section 2). Within the framework of this model, it is suggested that public service employment expansions may be used to shift the aggregate Phillips relationship toward the origin (Section 3). This conclusion differs somewhat from conclusions presented in a 1971 study by Michael C. Barth and Edward M. Gramlich. Barth and Gramlich report that, for both the case of a guaranteed public service employment program and the less extreme case of filling existing public sector vacancies with disadvantaged workers, the impact on the aggregate Phillips relationship is indeterminate.

After arguing that public service employment expansions shift the aggregate Phillips curve inward, we employ the same theoretical model in conjunction with data drawn from twelve large SMSA's in an effort to determine the particular geographic distribution of public service job slots which maximizes this inward Phillips curve shift. This second exercise leads to the very provocative conclusion that wage inflation is <u>not</u> minimized by concentrating public service hiring in regions with relatively high unemployment rates. This claim contrasts sharply with numerous policy studies which assert that wage inflation is minimized by policies which move to equalize unemployment rates among compartments of the labor market (see in particular, C. C. Holt, C. D. MacRae, S. D. Schweitzer, R. E. Smith).

We begin by presenting a brief review of the development of Phillips curve doctrine.

(1) A Review of Phillips Curve Doctrine

The Phillips-Lipsey approach has dominated research on wage and price inflation for over a decade. A general survey of this extensive Phillips-curve literature is not attempted here. This section is limited to some observations on the policy implications of research on the aggregate wage equation.

A. W. Phillips' original article was primarily a report of some statistical regularities he had found in aggregate British wage and unemployment data. He observed a convex, negatively sloped relationship between these two variables; he also found some evidence of loops around the average curve over the course of each business cycle, with wage inflation being higher during the upswing for a given rate of unemployment than during a downturn. Phillips himself provided little in the way of a theoretical rationale for his findings, but his empirical work provoked many other economists to attempt to identify the causal process which produced the inverse relationship. Theoretical treatments had in common the implication that the same economic conditions which cause a low unemployment rate also cause the high rate of wage inflation. The Phillips curve, then, was viewed as a constraint on aggregate economic policy. Both unemployment and inflation were viewed as "bads"; economic aggregate demand policies could be used to reduce either one, but only at the price of an increase in the other. Economic policy-making was thus reduced in effect to a simple consumer budgeting problem.

This viewpoint has tremendous appeal because of its simplicity and its rough correspondence to casual observation. Empirical work, however, has shown that the unemployment rate by itself explains only a fraction of the observed variation in wage inflation rates.

Other variables apparently make independent contributions in the aggregate wage-setting process. Phillips himself suggested, again from his empirical observations, that $\dot{U}$ (the rate at which the unemployment rate changes) should be an independent variable in the wage equation. Lipsey also experimented with $\dot{U}$, and in addition added price inflation as an independent variable. Other aggregate variables have been tried since then, including the profit rate (Perry [1966]), the growth rate of labor productivity (Kuh), proxies for trade union "militancy" (Hines, [1969]), and so on. The effect of these efforts has been to obscure the policy dilemma somewhat (since, if additional variables belong in the wage inflation equation, the "price" of a given unemployment level depends on what the values of these additional variables happen to be). But while making the policy problem more complex, the addition of "shifters" to the Phillips curve was not seen as posing a challenge to the basic notion of a tradeoff.

In the last few years, a fundamental challenge has been addressed to the Phillips curve doctrine. E. Phelps, M. Friedman, and others have argued that the wage-unemployment tradeoff is only a short-run phenomenon; that there exists a stable tradeoff between <u>unexpected</u> inflation and unemployment, which is shifted on a one-for-one basis with changes in inflationary expectations. If this view is correct, and if inflationary expectations can be assumed to adjust to the actual rate of inflation through some lagged adaptation process, then a low level of unemployment can only be achieved on a permanent basis if prices are allowed to accelerate over time (so as to maintain the rate of unexpected inflation constant). It appears, then, that the "price" associated with a given low level of unemployment tends to increase over time. The (short run) Phillips curve cannot be interpreted as a menu of policy choices, and hence loses much of the interest that was originally stimulated by Phillips' empirical observations.

J. Tobin offers a tentative rebuttal to this conclusion. He suggests that if it is true that the real tradeoff is between unexpected inflation and unemployment, it may also be true that the social welfare function is characterized by virtual indifference between levels of anticipated inflation (anticipated inflation forces agents to economize on cash balances, but this cost is small and could be reduced by a minor institutional change - legalizing the payment of interest on demand deposits). In this case the "short run" Phillips curve (i.e., the empirical relationship between unexpected wage inflation and unemployment) is a valid constraint on macroeconomic policy. A second rebuttal argument is that most empirical estimates of the Phillips curve find that inflation expectations are an important influence of wage inflation but have a coefficient less than unity (for a partial exception see Eckstein and Brinner). These empirical results suggest, then, that the short run Phillips curve is not shifted on a one-for-one basis with changes in the anticipated inflation rate; in that case, there remains a long run tradeoff between inflation and unemployment. It is too soon to abandon the Phillips curve as a framework for discussing inflation, and it is the framework we adopt for the remainder of our discussion. Within this framework the natural question remains: how can the short run Phillips curve be shifted to allow a lower unemployment rate to be associated with any given rate of (unanticipated) inflation.[1] In the next two sections we evaluate the effects of unemployment dispersion on the position of the Phillips curve.

(2) Aggregation Problems in the Specification of the Phillips Curve

Suppose the labor force can be divided into N groups, and for each group there exists a stable relationship between the rate of change of its average wage and a set of variables descri-

bing local demand and supply of labor conditions. Then only if a set of very strong mathematical conditions obtain will it be possible to find a stable relationship between the aggregate rate of wage inflation and some set of aggregate variables. It is often assumed, explicitly (or more often implicitly) in macroeconomic analysis that these conditions do hold: as J. Tobin has observed:

> The myth of macroeconomics is that relations among aggregates are enlarged analogues of relations among corresponding variables for individual households, firms, industries, markets. The myth is a harmless and useful simplification in many contexts, but sometimes it misses the essence of the phenomenon. (p. 9)

The inability of research on wage movements to uncover a stable macroeconomic relationship (see Bailey and Sackley), together with social welfare considerations, has stimulated some theoretical and empirical research into aggregation problems. This literature is now briefly reviewed.

Specification of the Aggregate Phillips Curve

The aggregation problem in the Phillips curve specification was noted by R. Lipsey in his theoretical interpretation of Phillips' empirical results. Lipsey noted that if the economy were partitioned into two labor markets, each characterized by the same stable wage-unemployment relationship, the aggregate wage-unemployment relationship would in general not be stable--if the local relationships were nonlinear, shifts in the distribution of unemployment for a given aggregate unemployment rate would change the aggregate rate of wage inflation. In particular, if the local relationships are convex and the two markets have the same wage level initially,[2] then an increase in the dispersion of unemployment will shift the aggregate Phillips curve away from the origin. Lipsey used this reasoning to justify the

famous "aggregation hypothesis", which states that an increase in the dispersion of unemployment rates across some dimension of the national labor market will shift the aggregate Phillips curve away from the origin. Lipsey went on to suggest the second and independent hypothesis that $\dot{U}$ (the rate of change of the aggregate rate of unemployment) was a proxy for the degree of unemployment dispersion, explaining the counterclockwise loops Phillips had observed for every business cycle.

G. C. Archibald (1969) presented a formal demonstration of the aggregation hypothesis (see Section 4 of this paper), and then went on to claim that the cross section variance of unemployment rates was a reasonable proxy for unemployment dispersion and hence should be included in the econometric specification of the aggregate Phillips curve (the "moments model"). (The use of the moments model has been criticized by A. G. Hines [1972].)

Archibald's theoretical work has stimulated considerable empirical experimentation with unemployment dispersion indexes. Archibald himself used the variance of unemployment across geographic regions for the U.S. and U.K. (More empirical experimentation with the moments model is presented in Archibald, Kemmis and Perkins.) Black and Kelejian use an industrial unemployment dispersion index in estimating a U.S. wage equation. Perry (1970), R. J. Gordon, and C. C. Holt et al. (1971) all incorporate measures of unemployment dispersion across the age-sex dimension in estimating U.S. wage equation (Holt et al. also look at geographic and occupational dispersion.) But in spite of Archibald's success in promulgating the aggregation hypothesis, his (and Lipsey's) theoretical reasoning is based on an erroneous assumption that yields a serious misconception regarding the effect of unemployment dispersion on the rate of aggregate wage inflation. The model presented below corrects this misconception.

Model

We assume that the labor market can be partitioned into compartments each of which determines a wage level independently of the others. This assumption may serve as an acceptable short run approximation for analyzing the effects of, say, geographical or occupational dispersion of unemployment rates. The model does not specify the process which generates observed structures of unemployment and wage rates. The rate of wage inflation in each market is determined by that market's employment rate.[3] These assumptions are slightly more general than those made by Archibald (who specified a functional form for the local wage setting equations). Holt has used assumptions similar to ours in his derivation of the aggregate Phillips curve.

The model is actually presented for the case of two markets, each with a fixed total labor force. At a point in time, let

w_i = the arithmetic mean hourly wage rate in Market i, $i = 1,2$;

E_i = employment in Market i, measured in man hours per unit of time;

$E = E_1 + E_2$, total employment in both markets;

N_i = labor force size in Market i, in man hours per unit of time (calculated as the sum over each labor force participant in Market i, of desired man hours per unit of time);

$e_i = E_i/N_i$, the employment rate in Market i;

$G_i = \dot{w}_i/w_i$, the growth rate of wages in Market i.

We assume the relationships between employment rates and the proportional growth rates of wages in each submarket can be written:

(1) $G_i = g_i(e_i)$, $i = 1,2$, where the g_i are restricted to be differentiable on (0,1) with $g_i' > 0$.

An expression for the aggregate wage rate is now needed. Archibald writes the aggregate rate of wage inflation as an average of the two compartments' rates of wage inflation as follows:

$$(2) \quad \frac{\dot{w}}{w} = \alpha \frac{\dot{w}_1}{w_1} + (1-\alpha) \frac{\dot{w}_2}{w_2} \quad ,$$

where α is the portion of the labor force in Market 1 in some base period. This index of wage inflation is associated with a geometric mean wage level index:

$$(3) \quad w = w_1^{\alpha} \, w_2^{1-\alpha} \, .$$

The more common Laspeyres wage index can be written

$$(4) \quad w = \rho_o w_1 + (1 - \rho_o) w_2 \quad ,$$

where ρ_o is the share of total employment in Market 1 in some base period. The aggregate rate of wage inflation is then

$$(5) \quad \frac{\dot{w}}{w} = G = \rho_o \frac{w_1}{w} \frac{\dot{w}_1}{w_1} + (1- \rho_o) \frac{w_2}{w} \frac{\dot{w}_2}{w_2} \quad ,$$

which differs from (2) in that the local rates of wage inflation are weighted by the relative wage.

The choice of wage index naturally influences the conclusions that can be derived from the model. The choice is not arbitrary; two reasonable criteria are discussed here:

(1) The wage index should correspond to an index that is actually used in estimating the Phillips curve and in policy decisions. This criterion rules out the geometric mean, but suggests a third index--the mean wage. Most available U.S. wage data are calculated as a mean. It is possible to adjust these series to approximate a Laspeyres index, however (see Perry (1970), Gordon). Furthermore, a new Laspeyres-type index is available from BLS since 1964. (For discussions of U.S. wage data, see Samuels, Gavett).

(2) Since the primary policy interest in the Phillips curve is in estimating the tradeoff between unemployment and price inflation, the wage index chosen should be relevant to explaining movements in an aggregate price index. The index of wage inflation derived from the Laspeyres index is appropriate in this regard because it weights local rates of wage inflation by the relative local wage, thus measuring the rate of increase in the wage paid to the average efficiency unit of labor. A markup model of price setting, among others, would call for this measure of wage inflation.

Archibald's measure of wage inflation appears to fail both these criteria. For the rest of the discussion we adopt the Laspeyres aggregate wage index.

The comparative static effect of a change in the structure of unemployment rates can be qualitatively evaluated by analyzing the effect of an increase in the employment rate in one market compensated by a decrease in the employment rate of the other market such that the aggregate employment rate remains unchanged. If we assume that the size of the labor forces in the two markets are unaffected by this adjustment, then this comparative static result follows from the following derivative:

$$(6)\quad \left.\frac{dG}{dE_1}\right|_{\text{e constant}} = \rho_0 \frac{w_1}{w} g_1 \frac{E_1}{N_1}\frac{1}{N_1} + (1-\rho_0)\frac{w_2}{w} g_2 \times \left(\frac{E - E}{N_2}\right)\left(-\frac{1}{N_2}\right).$$

Noting that $\rho_0 = \frac{E_1}{E}$ (where E_1 and E are measured in period 0), we can simplify (6):

$$(7)\quad \left.\frac{dG}{dE_1}\right|_{\text{e constant}} = \frac{1}{E}\left\{e_1 \frac{w_1}{w} g_1'(e_1) - e_2 \frac{w_2}{w} g_2'(e_2)\right\}$$

If Market 1 had the lower employment rate initially, expression (7) predicts the effect on aggregate wage inflation of a reduction in unemployment dispersion. The sign of this expression depends on relative wage rates and the functional forms of the two local Phillips curves.

The wage inflation-minimizing structure of employment rates can be found by solving the necessary condition of a minimum of (7) to give:

$$(8)\quad \left.\frac{dG}{dE_1}\right|_{\text{e constant}} = 0 = e_1 \frac{w_1}{w} g_1'(e_1) - e_2 \frac{w_2}{w} g_2'(e_2) \quad .$$

(A sufficient condition is that the local Phillips curves are both convex.)

From (8) it is seen that the necessary condition for a minimum of G is that local employment rates take values that satisfy the following equation:

$$(9)\quad \frac{e_1}{e_2} = \frac{w_2\, g_2'(e_2)}{w_1\, g_1'(e_1)} \quad ,$$

This condition makes clear the importance of relative wage levels; if wage levels differ widely among market segments, then the structure of unemployment rates (e_1^*, e_2^*) associated with minimum aggregate wage inflation will be characterized by high dispersion, with e_i^* relatively high (low) when w_i is relatively low (high).

Condition (9) contrasts with the corresponding condition that can be derived from Archibald's measure of aggregate wage inflation (Equation 2), which depends only on the relative slopes of the two local wage equations:

$$(10)\quad \frac{e_1}{e_2} = \frac{g_2'(e_2)}{g_1'(e_1)} \quad .$$

The two are the same only when the wage levels are the same in the two markets.

Why should high rates of unemployment be associated with high wage levels, and vice versa? The answer lies in the distinction between a man-hour of work and an efficiency unit-hour of work. In calculating the aggregate rate of wage inflation, local rates of wage inflation are weighted by relative wage levels, thus producing a measure of the average rate of change of the wage paid to an efficiency unit of labor. The measure of the aggregate unemployment rate weights each manhour equally. Hence a given rate of wage inflation is less costly (from a social welfare point of view) in a low wage market, but the extra employment it buys is worth just as much as it would be in a high wage market.

It can be argued that we should in fact be concerned about the unemployment rate of efficiency units rather than men (if, for example, our primary concern is in maximizing GNP and income distribution is controlled by policy instruments other than aggregate demand). Indeed, the disproportionate furor over the unemployed aerospace engineers during the last few years is evidence that policymakers do not weight every unemployed manhour equally.

Suppose we measure an efficiency unit employment rate e as follows:

(11) $$\hat{e} = \frac{\sum w_i E_i}{\sum w_i N_i} .$$

If we now perform the same hypothetical experiment as before, only this time holding $\hat{e}$ constant as employment is shifted between markets, it can be shown that relative wage levels no longer appear in the criterion for minimum aggregate wage inflation. The solution is exactly the same as that found by using Archibald's wage inflation index. The remaining discussion concerning unemployment rates is relevant only to the common (unweighted) measure.

In the next section we apply the model to analyzing the effects of changing the unemployment structure across skill groups and across geographic areas.

(3) Occupational and Geographic Unemployment Dispersion

Occupational Unemployment Dispersion

If a PSEP is targeted at low-wage, low-skilled workers, it will create a relatively tighter market for such labor. In other words, the ratio of unskilled to skilled unemployment rates should be lower (for any given aggregate unemployment rate) with a PSEP than without. To the extent that the skilled and unskilled wage level are determined independently,[4] this change in the unemployment structure should shift the aggregate Phillips curve towards the origin, as can be seen from equation (8). Suppose Market 1 is for skilled labor and Market 2 for unskilled. The effect on aggregate wage inflation of creating PSEP while holding an unemployment constant is negative if

$$(12) \quad \frac{e_2 w_2}{e_1 w_1} < \frac{g_1'(e_1)}{g_2'(e_2)}$$

(where the e_i and w_i are measured before the introduction of the job creation program). Since $e_2 < e_1$, w_1 is substantially greater than w_2, and the g_i are convex, it seems extremely plausible that (12) is valid. Only if the Phillips curve for skilled labor is much flatter than for unskilled labor will a PSEP cause an unfavorable shift in the aggregate Phillips curve. In the absence of arguments to this effect, it appears safe to conclude that a PSEP targeted at unskilled workers will shift the aggregate tradeoff towards the origin.

We have argued that an increase in employment in the unskilled market, with total employment held constant, leads to a

reduction in the proportional rate of wage growth for the economy as a whole. The effect of such an employment shift bears the following interpretation in the language of aggregative Phillips curve analysis: corresponding to the initial distribution of employment between the two markets, there may be thought to exist an aggregate Phillips curve which relates the aggregate unemployment rate to the aggregate proportional growth rate of wages (curve A in Figure 1).

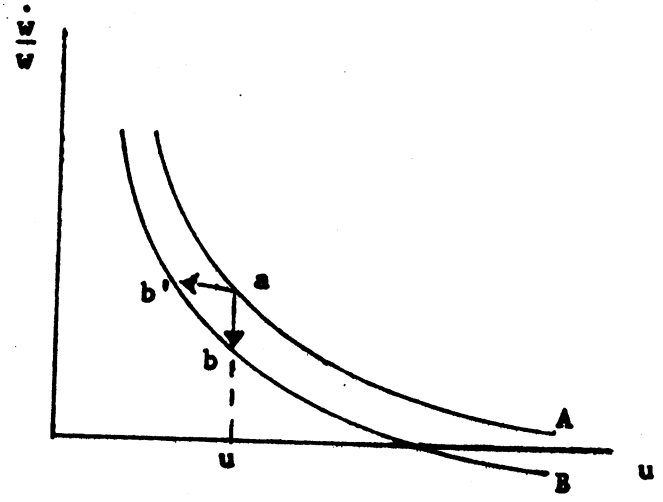

Figure 1

To the new employment distribution which results from the employment shift carried out above, there corresponds a second hypothetical aggregate Phillips curve (curve B in Figure 1) which lies between the origin and the initial aggregate Phillips curve. The particular employment shift carried out is associated with a movement from point a on curve A to the point B on curve b.

This employment shift differs somewhat from the employment shift which would result from a public service employment expansion in that the latter shift does not call for reductions in skilled employment to correspond to unskilled employment increases (though in principle there is no reason why a PSE expansion could not be so structured). A policy which increases employment in market 2 without reducing employment in market 1 will reduce the aggregate unemployment rate and may be represented in Figure 1 as a movement from point a to point b'. While aggregate wage inflation at b' is higher than at a, the employment shift may still be considered anti-inflationary in the sense that it moves the economy to a more favorable aggregate Phillips curve.

Geographic Dispersion

A crucial issue in designing a large scale federal job creation program for disadvantaged workers is the determination of the geographic distribution of funds; what percentage of the total should be allocated to each locality. This decision should and will be influenced by many considerations. The fact that the discussion which follows focuses on the inflationary effect of an allocation should not be construed as indicating that this is the only important consideration.

To the extent that local labor markets determine wage levels independently, the model developed in Part 2 is relevant to determining the inflationary effect of a given geographic distribution of unemployment.[5] A common claim is that a policy

tending to equalize unemployment rates across local markets should shift the aggregate Phillips curve towards the origin--this conclusion follows from Archibald's model under the assumption that local wage equations are similar to each other. Criterion (9), on the other hand, implies that equalization of unemployment rates will have the desired effect if local wage equations and local wage levels are similar, but not necessarily in other cases. While it is not feasible, given current data constraints, to estimate local wage equations with any accuracy,[6] local wage levels can be estimated in some cases. Table 1 presents estimates for the 12 SMSA's identified on the 1967 Survey of Economic Opportunity. The estimated hourly wage levels exhibit considerable dispersion, ranging from $2.19/hour for Houston to $3.21/hour for San Francisco. This degree of wage dispersion indicates that the unemployment structure associated with the most favorable aggregate Phillips curve is not characterized by equal unemployment rates; criterion (9) suggests that San Francisco, for example, should have a relatively high unemployment rate, Houston a relatively low unemployment rate, and so on.

Table 1 also gives the actual 1967 unemployment rates for the 12 SMSA's, and notes that these rates are significantly positively correlated ($p = .56$) with the estimated wage levels. Since both the unemployment structure and the wage structure across SMSA's remains quite stable over time, we have the following conclusion: The current geographic structure of unemployment rates is qualitatively similar to the "optimum" (wage inflation minimizing) structure.

The empirical evidence presented here is rather weak, and further work should be undertaken to check our conclusions. If they are valid, then it is the case that the objective of minimizing the inflationary effects of a job creation program does not

require that areas with relatively high unemployment rates should receive a disproportionate share of the total funding; on the contrary, a distribution scheme based strictly on population size would appear to be more compatible with the goal of minimizing wage inflation.

TABLE 1

Unemployment and Wage Rates for 12 SMSA's

SMSA's	Unemployment[a]	Hourly wage[b]
Washington, D.C.	2.3%	$ 2.73
Houston	3.3	2.19
Chicago	3.3	2.80
Baltimore	3.7	2.28
Philadelphia	3.7	2.71
New York	3.7	2.81
Cleveland	3.8	2.49
St. Louis	4.4	2.56
Detroit	4.5	3.00
Pittsburgh	4.8	2.70
San Francisco	5.4	3.21
Los Angeles	5.6	3.02

[a]1967 SMSA unemployment rates from Table D-12, Manpower Report of the President, 1972.

[b]The reported wage for each respondent is weighted by the number of hours he worked in 1966. Respondents who worked during 1966, but for whom no wage was reported, were imputed a wage from a regression based on personal characteristics. All wages are adjusted for inter-city variation in the cost of living.

Note: The correlation coefficient between the two variables is .56, which is significantly different from zero at the 2.5% level.

Footnotes

[1]An accelerationist may want to use our arguments to evaluate the effect of a PSEP on the so-called "natural rate of unemployment."

[2]Lipsey did not state this assumption explicitly, though it is needed.

[3]The expected rate of price inflation could be included in the model without changing our conclusions. The reader should therefore interpret the dependent variable as the unexpected portion of wage inflation.

[4]This may be a reasonable assumption in the short run. Economists such as Peter Doeringer, Michael Piore, Bennett Harrison, and others would argue that the "secondary" labor market (which includes only but not all unskilled workers) sets wages independently of the "primary" labor market even in the long run.

[5]A compartmentalized model is apparently not appropriate for the U.K. The data presented in Thirlwall, for example, show that wages increased at the same rate in all regions despite substantial dispersion in unemployment rates. The model is more appropriate for the U.S., where bargaining at the national level is less important.

[6]The only wage data consistently available is manufacturing establishment data. Kaun and Spiro have used these data to estimate Phillips curves for 30 U.S. SMSA's, without notable success.

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