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INEQUALITY AT WORK: RACE, SEX AND UNDEREMPLOYMENT*

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ABSTRACT. New indicators of underemployment are presented for whites, blacks, Mexican Americans and Puerto Ricans by sex. The indicators are based on hours worked, education, skill utilization, and pay. Data from the 1980 Current Population Survey are supplemented with Dictionary of Occupational Titles information to construct the indicators. Whites consistently have the lowest underemployment, and comparison across groups reveals the different types of employment problems faced by minorities and women. These indicators of underemployment are compared with those from a different conceptual approach (the Labor Utilization Framework) using the same survey data. The advantages of the new indicators are discussed.

I. INTRODUCTION

This paper explores and measures different types of employment problems of minorities and women. After a review of existing measures of underemployment, it was decided that each measure was in some way inadequate for our purpose and consequently a new set of measures was created. The sections below describe the measures developed, provide statistical results from the 1980 Current Population Survey, and compare the results of the new measures with those of another approach to measuring underemployment.

The most important employment problem is generally considered to be an involuntary lack of employment. The official U.S. unemployment rate, published monthly by the Bureau of Labor Statistics (BLS), is heralded as a barometer of the economy. When the rate goes down, the economy is said to be improving; when it goes up, especially if it reaches the 'double digit' rate, warning flags are raised.

Unemployment among minorities and, sometimes, women, has received national attention. The unemployment rate for blacks, especially, is usually high. It has consistently been about double the rate for whites.

There are good reasons for the emphasis on the unemployment rate as a social indicator as well as a economic indicator. Unemployment is known to be a serious problem for the worker, his or her family and society. In addition

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to the obvious losses of money and self-esteem, Brenner (1976) has found that there are psychological and social problems associated with increased levels of unemployment that are not always immediately evident. He calculated that a 1.4 percent increase in the unemployment rate has been associated with a 5.7 percent increase in suicides, a 4.7 percent increase in admissions to state mental hospitals, and an 8.0 percent increase in homicides.

Unemployment is a highly visible problem, thanks primarily to the media attention it receives. It is not the only problem experienced with regard to employment, however, nor is it necessarily the most important problem. Although the unemployment rates may be a good indicator of the state of the economy, they may be less useful as an indicator of how well specific groups of workers are faring. The quality of employment, not just its presence or absence, must be considered. Finding an adequate job, especially for minorities and women, is perhaps more important than just being not unemployed.

The seriousness of inadequate employment can be seen in its duration. Whereas unemployment is typically a temporary phenomenon, usually lasting a few weeks or months, inadequate underemployment can affect a person throughout his or her entire worklife. A person can be underemployed through inadequate wages, or a similar measure, as long as the person remains in the labor force. Time is generally a cure for unemployment, but may not be a cure for underemployment. When the duration of underemployment is coupled with inadequate earnings, skill underdevelopment and underutilization, the additional ramifications of underemployment become clearer. The economic, sociological, psychological and political implications, causes and consequences of high levels of lifetime underemployment warrant detailed study. Having adequate measures of specific forms of underemployment should facilitate such research and will allow for the periodic monitoring of the extent and distribution of the problem.

II. RELATED LITERATURE

A number of different indicators of inadequate employment have been developed (see, for example, Ginzberg, 1979; Levitan and Taggart, 1974; National Commission on Employment and Unemployment Statistics, 1978; Vietorisz and others, 1976). The most widely used approach to underemployment is the Labor Utilization Framework (LUF), developed by Hauser

and Sullivan. The LUF includes four types of inadequate utilization of workers: unemployment, involuntary part-time employment, low income, and skill mismatch. The four types are hierarchical, with unemployment the most severe, and skill mismatch the least severe. A residual fifth category represents the adequately utilized workers. This framework will be compared with the measures developed below for the analysis of underemployment among minorities and women.

To determine the amount of underemployment using the LUF effectively requires assigning each person with a job or wanting a job into one of the five mutually exclusive categories. The labor force is first screened for subunemployment (unemployed persons who have given up looking for work) and for unemployment (unemployed persons who are actively seeking work). Both groups of unemployed persons are considered inadequately utilized. Persons not unemployed are examined for involuntary part-time employment (workers who want to work full time but can only find part-time work). Next, full-time workers are screened for low pay, usually defined as an income below the Federally established poverty level. Finally, workers not inadequately employed on any of the first levels are screened for skill mismatch. This definition is more complex. First, for each detailed occupational group the mean educational level and the standard deviation are calculated. Then a cutoff level of one standard deviation above the mean is established. Workers who exceed the mean level of education for their detailed occupational group by more than one standard deviation are defined as mismatched. As Clogg has noted, the absolute levels of mismatch using the formula are difficult to interpret, because of somewhat arbitrary definitions of the indicator.

The LUF has recently been used by Clogg and Sullivan (1983) to examine trends over time, and by age, sex and race (black/nonblack). Such analyses greatly expand our knowledge of inadequate labor force utilization levels across demographic groups. One of our primary concerns in this paper is that the three primary types of underemployment – hours, income, skill mismatch – need greater specificity if they are to be used for more detailed intergroup comparisons. Minorities and women, we suspect, suffer not only more underemployment but also different types of underemployment than white males. By creating additional measures for each underemployment type, we hope to be able to measure more accurately the facets of inadequate utilization of particular concern to minorities and women. Further, we wish to expand the number of groups usually included in studies of this type, to

examine whites, blacks, Mexican Americans and Puerto Ricans, as well as males and females.

Finally, we wish to develop measures that are more intuitively appealing than those used in the LUF. Underemployment is a serious social issue, and its measurement, we believe, should be of use to social policymakers. The best indicators for this purpose are ones that are accurate, concise, and readily understood by those with limited statistical backgrounds.

The following sections describe our detailed measures of underemployment. Two indices, rather than one, are developed for each of these facets of underemployment: inadequate hours, inadequate skill utilization, inadequate pay. Because the specific types of employment problems faced by minorities and women must be known for a subsequent analysis of potential sources of the problem and viable remedies, scores on each of the measures are calculated separately. This will allow for more detailed comparisons than can be obtained through a single composite score.

III. THE DATA

The data for this paper are from the March 1980 Current Population Survey (CPS), which is the basis for the monthly unemployment figures released by BLS. The CPS is a very comprehensive sample of the civilian noninstitutionalized population. It included in March 1980 a sample of approximately 68 000 households, representing approximately 147 000 persons aged 14 and above. The March version was selected because it contains supplemental information on the individual's employment situation, income and earnings for the previous year.

The CPS was supplemented with information on each individual's occupation (identified by a three-digit code in the CPS) obtained from the Dictionary of Occupational Titles (DOT), a reference manual published by the Department of Labor. For each occupation, information was available from the DOT on the typical education requirements, as measured by the General Educational Development (GED) scores. (For further information on this measurement, see U.S. Department of Labor, p. 209.)

IV. ANALYSIS OF THE DATA

Unemployment

The official U.S. unemployment for March 1980 is presented in Table I as a benchmark figure, since not having any job is universally considered to be a form of labor utilization inadequacy. Information on four racial/ethnic groups is available: whites (non-Hispanic), blacks, Mexican Americans, and Puerto Ricans. The unemployment rate for each group is shown. The lowest rates were held by whites, male and female. White females had the lowest rate, at 5.6 percent, with white males having a slightly higher rate, 6.0 percent. The slightly lower rate for white females is probably related to the fact that they tend to be employed in less cyclically-sensitive occupations than other groups. By contrast, blacks had rates more than double those of whites, at 13.0 percent for both males and females. Rates for Puerto Ricans were only slightly lower than the rates for blacks (11.0 percent for males, 12.8 percent for females). Rates for Mexican Americans were also well above the average (6.7 percent) for all workers.

1. *Underemployment Through Inadequate Hours Worked*

There are two different ways that a person can be underemployed through inadequate hours worked. The first is through involuntary part-time employment. This measure, also used by the LUF, is identical to the one reported by BLS. Persons who worked fewer than 35 hours during the preceeding week were asked to indicate the reason for their part-time work; those who indicated slack work, material shortage, equipment repair, the start of a new job or end of an old one, or inability to find full-time work are counted as involuntary part-time. Persons who desired part-time work or those who cited other reasons are not counted.

As Table I shows, white males have the lowest rate of involuntary part-time work, 2.7 percent. Several groups were involuntary part-time workers at a rate double that: 7.1 percent of Mexican American females, 6.6 percent of Mexican American males, 6.0 percent of Puerto Rican males, and 6.1 percent of black females. In general, females had this form of underemployment more than males. Only among Puerto Ricans was this relationship reversed: Puerto

TABLE I

Percent unemployed and having six forms of underemployment, by race, sex and ethnic group, 1980

	Males				*Females*				*All workers*
	Whites	Blacks	Mexican Americans	Puerto Ricans	Whites	Blacks	Mexican Americans	Puerto Ricans	
Unemployed	6.0%	13.0%	8.3%	11.0%	5.6%	13.0%	11.6%	12.8%	6.7%
(1) Underemployed through inadequate hours									
Involuntary part-time	2.7	5.0	6.6	6.0	3.6	6.1	7.1	4.3	3.4
Intermittent employment	5.3	11.5	10.1	10.2	4.0	8.1	8.4	6.9	5.4
(2) Underemployment through inadequate skill utilization									
Overeducation	23.4	37.0	31.8	33.8	20.3	26.2	20.9	22.6	23.1
Marginal jobs	5.3	11.9	11.2	17.3	13.9	21.7	21.5	15.5	10.0
(3) Underemployment through low pay									
Poverty workers	2.1	4.5	6.2	7.0	1.8	6.7	3.8	3.1	2.4
Inequitable pay	13.8	19.0	17.8	20.2	27.0	29.1	27.0	35.5	20.1
Total underemployed	29.0	40.0	32.2	36.1	39.1	47.9	38.1	45.2	34.6
Total neither unemployed nor underemployed	65.2	46.9	43.8	36.5	55.4	39.1	33.0	31.4	58.8
Total number in labor force (in thousands)	50363	5227	2111	351	36668	4928	1189	213	

Rican females were involuntary part-time workers less often (4.3 percent) than males (6.0 percent).

Second, persons can work inadequate hours by being unemployed intermittently, in spells throughout the year. Workers may, in other words, have periods of full-time employment that are broken by periods of unemployment. Persons who were unemployed for fifteen or more weeks during the previous year, or who had three or more spells of unemployment, are counted here as 'intermittently employed'. This measure is thus of workers who have a history of unemployment even though during the previous week they may have been working full time, and therefore would not be counted as either unemployed or involuntary part time.

When examining inadequate hours in this way, intermittent employment, females have lower rates than males, just the opposite of the situation among involuntary part-time workers. This holds true for every group. Women, therefore, were more likely to see their hours of work reduced through involuntary part-time work, but are less likely to be totally unemployed for substantial periods of time. Nevertheless, all groups of minority women have rates of intermittent employment higher than white males (5.3 percent). And minority males have underemployment rates consistently double the rate for white males. Not only do white males suffer the least unemployment, they also have the lowest rate of underemployment as measured by both concepts of inadequate hours worked.

2. *Underemployment Through Inadequate Skill Utilization*

The two indicators of skill underutilization that we use are complex, and differ substantially from that of the LUF in operationalization. The first indicator we have termed 'overeducation'. This measure relates to formal education. Following Rumberger, we are defining workers as overeducated if their educational attainment substantially exceeds the requirements for their jobs. Educational requirements were obtained from the Dictionary of Occupational Titles, using the General Education Development (GED) score translated into educational levels. Persons identified as overeducated were those who had a college degree in occupations that typically do not require a college degree; those with some college in occupations requiring no more than a high school education; or those with a high school diploma in occupations requiring less than a high school education. In a sense, therefore, what

TABLE II

Unstandardized overeducation rates and percent of sample with each level of education, by race, ethnic group and sex

Race, ethnic group and sex	*Less than high school*		*High school*		*Some college*		*College degree*	
	Over-education	Percent	Over-education	Percent	Over-education	Percent	Over-education	Percent
Males								
White	–[a]	23.8%	31.3%	36.8%	28.7%	17.8%	33.0%	21.6%
Black	–	39.6	53.3	37.4	49.2	15.5	39.5	7.5
Mexican American	–	57.0	46.7	26.1	38.2	11.4	36.4	5.5
Puerto Rican	–	54.1	50.1	30.8	47.6	8.8	30.7	6.3
Females								
White	–	19.5	21.6	45.8	30.1	18.2	35.4	16.5
Black	–	31.9	32.6	41.0	43.9	16.4	30.8	10.7
Mexican American	–	47.0	26.0	36.9	29.6	11.7	30.1	4.3
Puerto Rican	–	42.9	31.8	37.3	23.6	9.9	32.6	9.9

[a] Persons with less than high school education were excluded from the overeducation rate by definition, because they could not be in an occupation that required a lower level of education.

is measured here is the ability of the individual to transfer his or her educational attainment into a suitably comparable job.

The definition of overeducation in this manner results in biased figures, however, because workers in the lowest educational category (less than high school education) cannot be overeducated. Because minorities have a larger percentage of workers in that educational category than whites, minorities would be less likely to be overeducated. In our sample, for instance, 23.8 percent of white males had less than a high school education compared with 39.6 percent of black males, 57.0 percent of Mexican American males and 54.1 percent of Puerto Rican males. (See Table II).

To avoid the resultant distortions in the overeducation rates, the data were standardized by level of education. The standardized rates are shown in Table I, and are the basis for the following discussion.

The data for overeducation show that about a quarter (23.4 percent) of white males had substantially more education than their occupations required. Very roughly the same percentages of females were also overeducated, with white females (20.3 percent) being overeducated less often than minority females (26.2 percent of blacks, 20.9 percent of Mexican Americans and 22.6 percent of Puerto Ricans). Among minority males, however, the standardized rates of overeducation were considerably higher: 37.0 percent of black males were overeducated, along with 31.8 percent of Mexican American males, and 33.8 percent of Puerto Rican males. Although overeducation is a problem for all groups of workers, the relatively high rates of overeducation among minority men show that they are less successful in finding jobs that are commensurate with their level of education. Whether this is the result of job discrimination, or differences in the quality of education, or reflects a less vocationally-oriented education, cannot be determined here, but the high level of overeducation is surely important. Female workers, on the other hand, experience this form of underemployment less, perhaps because many occupations traditionally open to women (such as nursing and teaching) have relatively high educational requirements; as a result, this measure of underemployment for women is low.

Next, an attempt was made to look specifically at persons who have inadequate opportunity to develop or use their skills. For this concept, the measure of 'marginal jobs' was developed. Marginal jobs, as defined here, are those with little opportunity for career advancement through the development and utilization of human capital. They are, as Wool (1976) noted, the

"jobs of last resort", jobs people take because they do not have access to better jobs. Marginal jobs were defined operationally as occupations with skill requirements (according to the DOT) of three months or less. (Persons earning more than the average income for their SMSA (Standard Metropolitan Statistical Area) or State were excluded.) This definition of marginal jobs closely relates to the economic concept of the 'secondary job market', consisting of jobs with low wages, poor working conditions, and little chance for advancement (see Doeringer and Piore, 1971). Typical occupations that meet this definition included: messenger, cashier, dishwasher, chambermaid and maid, and elevator operator.

The percentages of workers in marginal jobs show a different pattern from overeducation, except that – once again – white males had the lowest rate (5.3 percent). The highest rates of this indicator of underemployment were those for females, regardless of race or ethnicity. Black females and Mexican American females had especially high rates, with greater than one out of five workers in marginal jobs (21.7 percent and 21.5 percent, respectively). Puerto Rican males were the only males to have a rate of underemployment approaching this level (17.3 percent). Still, the rates for other minority males were more than double the rate for white males.

3. *Underemployment Through Low Pay*

We use two measures of pay inadequacy, one 'absolute' and one relative. The measure of 'absolute' pay inadequacy counts persons whose family incomes were below the poverty level, even though they worked at least 9 months of the preceding year. As such, this measure is similar to that used by Hauser, Sullivan, and others. Because we use the federally-established poverty level, which uses residence, family size and family (rather than individual) income as its basis, no distinction is made between primary and secondary wage earners. As a result, the measure is conservative, but is more accurate in counting the working poor as an indicator of employment hardship.

The data show that workers whose wages were insufficient to lift their households out of poverty represented a relatively small proportion of the work force. In fact, this form of underemployment occurred less often than any other. The reasons are not surprising: poverty-level wages represent an extremely low level of annual earnings (the exact level depends on family size and other factors); in the case of married individuals, if one member

earned a salary that low, the other would most likely be working. The disparities between whites and minorities, however, is marked. Whites had by far the lowest rates, and other groups had rates two or three times as high. Among males, 2.1 percent of whites, but 4.5 percent of blacks, 6.2 percent of Mexican Americans and 7.0 percent of Puerto Ricans experienced poverty-level wages. Among females, rates were lower for all groups except blacks. (6.7 Percent of black females had this form of underemployment.)

The second measure of pay inadequacy is a measure of low relative pay, or what might be termed relative pay deprivation. Earnings for white males were the standard. Workers were defined as inequitably paid if their earnings for the previous year were under half of FAIR.PAY, as determined by this regression equation obtained from a stepwise regression using a variety of items commonly used in human capital analysis:

FAIR.PAY = (LOC.EARN * 1.11932598) = (WKS.WRK * 238.857521) + (HRS.LAST * 128.821407) + ED.YEARS * 124.022085) + (EXPERSQ * −10.9105154) + (AGE * 659.399916) + (GED.LY * 403.306843) + (TRAIN.LY * 77.4543497) + (−38565.36);

where LOC.EARN is the average local earnings (in thousands of dollars), WKS.WRK is weeks worked last year, HRS.LAST is hours worked last year, ED.YEARS is years of schooling, EXPERSQ is AGE-ED.YEARS-6 (which approximates work experience) squared, AGE is years of age, GED.LY is the GED score for the occupation the individual had for the previous year, and TRAIN.LY is the average amount of training required for that occupation (in months).

The rates for inequitable pay show wide variation. Again, white males had the lowest rate (13.8 percent). Minority males had somewhat higher rates, with about one in five having this form of underemployment (19.0 percent for black males). By far the highest rates, though, were those of female workers, regardless of race or ethnic group, who had levels double those of white males. As other studies have shown as well, a major problem female workers face, white and minority, is receiving earnings that are lower than those that white males would be receiving for having equivalent human capital and employment characteristics.

V. COMPARISON WITH LUF

Our 6 measures of labor force underutilization as presented here offer some

important contrasts when compared with the Labor Utilization Framework. The same CPS data (March 1980) were analyzed by Clogg and Sullivan using the LUF. A comparison of the two analyses is shown in Table III.

The LUF has a slightly lower unemployment rate because it includes an estimate of discouraged workers in its total estimate of the labor force. Both estimates for involuntary part-time work were the same. We included, in addition, the measure of intermittent employment, which is more widespread (5.4 percent of the labor force) than involuntary part-time work (3.4 percent).

Our measurement of skill mismatch – overeducation – is operationalized very differently from the LUF, with very different results. The LUF uses mean years of schooling for occupational groups; persons with more schooling than the mean plus one standard deviation were considered overeducated. By contrast, we used the GED for each worker's job to estimate the *actual education needed* to perform the work. Overeducation measured this way is not only more widespread (23.1 percent *versus* 14.2 percent) but the demographic differences are more striking: when standardized for level of education, minority men are clearly the ones most affected.

Our measurement of marginal jobs is unique to our study as a form of inadequate skill utilization. And again, this measurement exposes considerable demographic variation, and women are the ones most affected.

Our estimate of poverty workers is low compared with the LUF, because we used family income rather than individual income, yielding a more conservative estimate. However, our use of family income results in a better

TABLE III

Comparisons of 6 measures of underemployment with the LUF

Terminology							
6 measures	Unemployment	Involuntary part-time	Intermittent employment	Overeducation	Marginal jobs	Poverty wages	Inequitable pay
LUF	Unemployment	Low hours	–	Skill mismatch	–	Low income	–
Percent of labor force affected							
6 measures	6.7%	3.4%	5.4%	23.1%	10.0%	2.5%	20.1%
LUF	6.5	3.4	–	14.2	–	7.3	–

estimation of the 'working poor'. The LUF measure counts as 'poor' persons earning a very low income even if the family income was high.

Finally, there are considerable demographic differences that are seen when looking at inequitable pay, which is not included in the LUF. One out of 5 workers experienced this form of underemployment. Further, as seen in table 2, this problem disproportionately affects women rather than men.

VI. SUMMARY AND CONCLUSIONS

This paper developed and examined six measures of underemployment, an expansion and modification of the Labor Utilization Framework, that was specifically designed to measure differences between groups. The indicators of underemployment were kept separate, in part to estimate more accurately the type of employment problems faced by different demographic groups. Furthermore, it is clear that the various forms of underemployment do not necessarily fall into a neat ordered structure as is required by the LUF approach to measurement. Although related, individuals can have any, several, or all forms of underemployment. Additional investigation and data might lead to other types of measurable underemployment. In many ways inadequate employment is like adequate health, in that a number of independent conditions can be experienced simultaneously.

These measures of underemployment represent an important step forward in social indicators research. They can be used, individually or collectively, to measure progress (or lack of progress) over time. They can also be used to contrast the types of problems faced by different groups. For example, the relatively low unemployment rate for white females is offset by their high rates of inequitable pay and marginal jobs.

Finally, these indicators of underemployment are sufficiently straightforward that they can be used by policymakers, who may need help in understanding both the nature and scope of underemployment. Underemployment – as opposed to unemployment – remains a serious problem even during times of economic recovery. Our research, for example, showed that over one-third of minority males were substantially overeducated for their jobs even when the unemployment rate was relatively low. A critical advantage of our method of measuring underemployment is that such problems can be discretely measured and readily comprehended by non-technically trained audiences. If indicators of underemployment are to be adequately utilized

in the formation of public policy (as they must be if policies are to be effective in alleviating social ills), these characteristics of the indicators will be necessities.

NOTE

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