UNDEREMPLOYMENT AS A CRITERION FOR SPECIAL EDA BENEFITS, WITH SPECIAL REFERENCE TO RURAL COUNTIES*

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A visit by the Director of one of the Economic Development Districts in Oklahoma motivated this study. Because of declining unemployment prior to 1970, several counties in his district had lost special funding under Titles I and IV of the Public Works and Economic Development Act of 1965 (PL 89-163). The director contended that substantial poverty and other signs of economic and social distress persisted in previously designated EDA counties, and that a new criterion (specifically underemployment) was needed to gear benefits to real needs.

The suggested criterion is not without legislative credentials. The "Statement of Purpose" of the Public Works and Economic Development Act of 1965 lays considerable stress on underemployment:

> Sec. 2. The congress declares that the maintenance of the national economy at a high level is vital to the best interests of the United States, but that some of our regions, counties, and communities are suffering substantial and persistent unemployment and underemployment, that such unemployment and underemployment cause hardship to many individuals and their families, and waste invaluable human resources; that to overcome this problem the Federal Government, in cooperation with the States, should help areas and regions of substantial and persistent unemployment and underemployment to take effective steps in planning and financing their public works and economic development.... [PL 89-163; emphasis ours].

In administering PL 89-163, the Economic Development Administration (EDA) provides special assistance based presumably on criteria of unemployment, median income and population loss. Special consideration is given to Indian reservations manifesting a great degree of economic distress and areas experiencing a sudden rise in unemployment.[1] The absence of underemployment from the operational criteria not only appears in contradiction of stated purpose, but also may divert focus of the EDA from serious social and economic problems, particularly in rural areas, where labor force participation is low. We shall show in this paper that greater stress on underemployment as a criterion would direct programs more frequently toward greatest need as well as toward rural counties.

Objectives of this report are (1) to examine empirically the characteristics of counties which received EDA benefits under Titles I and IV in 1965-66, (2) to estimate empirically the association between the underemployment criterion and other criterion, and (3) to observe how use of alternative criteria would influence the number of rural counties designated for special EDA benefits.

QUALITATIVE ANALYSIS OF CRITERIA FOR ALLOCATING EDA AID: ALL COUNTIES

The principal purpose of this empirical section is to relate underemployment to other criteria that have or could be used to designate counties for special EDA benefits. The matrix of simple correlation coefficients shows the degree to which various criteria

[1] Areas could qualify for funding under Title I or IV of the Public Works and Economic Development Act of 1965 (PL 89-163). The basis for qualifying for funds under either title do not cite underemployment as a basis for applying for aid.

select rural counties and the extent to which use of productivity potential such as underemployment or unemployment is consistent with use of need criteria such as poverty and median income. Comparisons among all counties are made in this section, while only counties exhibiting extreme conditions of unemployment, underemployment and other criteria are compared in the next section.

A correlation matrix was computed for each of six states randomly selected from six major regions of the nation.[2] The states were Arizona, Idaho, Illinois, North Carolina, Oklahoma and Pennsylvania. Data for 1966 by county were collected on the following: (a) percent unemployed, (b) percent underemployed,[3] (c) median family income, (d) percent of families with income less than $3,000, (e) percent of the population classified as rural, and (f) percent population change in the decade preceding 1960. Summary results for a composite of all 404 counties of the six states are presented in Table 1.

Underemployment is significantly correlated with each of the other characteristics listed in Table 1. The criterion is quite closely related to need, as indicated by the comparatively large correlations with median income (-.78) and incidence of poverty (.74). Although unemployment is a component of underemployment, the two criterion are *negatively* correlated. The magnitude of the correlations suggest that the unemployment criterion not only is little related to need, rurality, and population changes, but actually selects away from counties with large underutilization of human resources. On the other hand, the underemployment criterion selected markedly toward counties with high rurality and large population loss.

Why is unemployment a separate dimension from the other criteria in Table 1? The answer must partially lie in the association of unemployment with the most industrialized counties. Industry layoffs are frequently of insufficient duration to cause

Table 1.
SIMPLE CORRELATION MARTIX FOR 404 COUNTIES OF SIX
SELECTED STATES, 1960[a]

	Underem-ployment	Unem-ployment	Median Income	Poverty (Income < $3,000)	Population Change (1950-60)	Rurality (% of Population Classed as Rural)
Underemployment	1.000000	-0.096937	-0.776387	0.739003	-0.362960	0.575357
	0.0000	0.0485	0.0001	0.0001	0.0001	0.0001
Unemployment		1.000000	-0.192043	0.169297	-0.186395	0.117304
		0.000	0.0003	0.0010	0.0004	0.0174
Median Income			1.000000	-0.956974	0.539170	-0.599835
			0.0000	0.0001	0.0001	0.0001
Poverty (Income < $3,000)				1.000000	-0.482809	0.546477
				0.0000	0.0001	0.0001
Population Change (1950-60)					1.000000	-0.418044
					0.0000	0.0001
Rurality (% of population classed as rural)						1.000000
						0.0000

[a]The numbers below the coefficient denote the probability of a greater absolute value of the coefficient under the null hypothesis that the population parameter RHO = 0. States included are Arizona, Idaho, Illinois, North Carolina, Oklahoma, and Pennsylvania.

[2] An exception to the random sampling was Oklahoma, which was deliberately selected to represent the West Southcentral region. Limited research resources precluded analysis of more states. Data are taken from [1], [2] and [3].

[3] The procedure for computing the percent underemployed is detailed by Kampe and Lindamood [1]. The measure of county underemployment is the ratio of county actual median income to the national median income adjusted for counties with respect to (a) age-color mix, (b) educational status, (c) labor force status, and (d) the employment factor of the labor force. These four adjustment factors are combined and multiplied by the national median income. This then is the county's median earning capacity or "required median income." To obtain the percentage of underemployment, the county "actual median income" was divided by the "required median income" and multiplied by 100 to obtain an "economic utilization index." By subtracting this index from 100, the percent underemployed is obtained. If the index was 100, the county labor force would be considered fully employed.

unemployed workers to drop out of the labor force. Industrialization is also frequently attended by high median income, low incidence of poverty, and inmigration. On the other hand, rural counties which depend more heavily on agriculture and mining (industries characterized by secularly declining employment) are also frequently characterized by low income, poverty and high outmigration. Herein lies a fundamental conflict between unemployment and cronic need.

QUANTITATIVE ANALYSIS OF CRITERIA FOR ALLOCATING EDA AID: EXTREME COUNTIES

Simple correlation in Table 1 were computed from data for the aggregate of all 404 counties in the six states. Not all counties either have been or are likely to be simultaneously eligible for special EDA benefits, however. Since extreme counties (highest median income, lowest poverty, etc.) under any given

criterion are not likely to receive benefits, they may be exaggerating the correlation effects and are best left out in comparing criteria. Table 2 is included to illustrate the application of the various criteria (rurality, defined as the percent of the population that is rural, is included but is not considered to be a criterion) if the same total number of counties were actually weighted most heavily in the past by the EDA in providing special benefits and show how the most rural counties would have fared under the various criteria.

Procedure for Computing Matrices

In 1965-66, 172 counties in the 404 county sample received aid under Title I or IV (Table 2). The same base, 172, was used to select counties for the various criteria: the 172 counties with the highest unemployment rate, the 172 counties with the lowest median income, and the 172 counties with the highest 1950-60 net population changes, etc., were selected.[4] After selecting the 172 counties ranking at the extreme for each variable, the characteristics of

Table 2.
PROPORTION OF EXTREME COUNTIES IN SELECTED STATES IN 1960 THAT POSSESSED SELECTED CHARACTERISTICS AND THAT RECEIVED EDA FUNDING UNDER TITLE I OR IV[a]

	Underemployment	Unemployment	Median Income	Poverty ($< \$3,000$)	Outmigration	Rural	EDA (1965-66)
Underemployment	100.00 (172)	49.92 (85)	78.49 (135)	77.91 (134)	30.81 (53)	65.12 (112)	56.40 (97)
Unemployment		100.00 (172)	62.21 (107)	63.37 (109)	33.72 (58)	54.07 (93)	72.09 (124)
Median Income			100.00 (172)	91.86 (158)	35.41 (61)	68.02 (117)	68.60 (118)
Poverty ($< \$3,000$)				100.00 (172)	33.14 (57)	65.70 (113)	64.53 (111)
Outmigration					100.00 (172)	30.81 (53)	30.81 (53)
Rural						100.00 (172)	60.47 (104)
EDA (1965-66)							100.00 (172)

[a]Element in row i indicates percentage of 172 counties ranking highest (lowest) in characteristic i that were also among the 172 counties ranking highest (lowest) in characteristic j. Number of couties are in parentheses. For example, of the 172 counties ranking higher in underemployment .85 (or 49.42 percent) also ranked highest in unemployment, 135 ranked lowest in median income, etc.

[4]The Economic Development Administration became functional in 1965 and the counties designated for Titles I and IV benefits in that fiscal year are included. Other variables included in Tables 1 and 2 apply to 1960. The EDA uses more recent unemployment data in designating counties, hence some error is introduced by our use of 1960 unemployment data. This bias probably leads to empirical underestimation of the actual reliance of EDA on unemployment.

these 172 counties were compared with respect to the other variables. The element a_{ij} in row i indicates the number of the 172 counties with the extreme characteristic i located in colum j. For example, a_{12} indicates that, of the 172 counties with the highest underemployment, 85 counties or 49 percent were also among the 172 counties with the highest proportion of unemployment.

Emperical Results by States

Summary of all six states (Table 2). Specially designated EDA counties were weighted most heavily toward unemployment: 72 percent of the 172 counties with highest unemployment were included in the 172 specially designated EDA counties.

Sole reliance on the underemployment criterion would have included 39 fewer counties (124-85) with high unemployment but would have included 23 more counties (134-111) with the highest incidence of poverty. Rural counties would have fared somewhat better using the underemployment criterion. Additional summary comments are given later.

Oklahoma. EDA special funding in 1965-66 tended to select more toward unemployment than any other single criterion. Underemployment and outmigration criteria least influenced EDA funding among Oklahoma counties in the past. Of the 40 counties receiving Title I and IV funding, 33 ranked among the 40 counties in Oklahoma with the highest unemployment and only 24 ranked among the 40 counties with the highest underemployment. Only 22 counties, or 55 percent, of the 40 counties with the highest outmigration received special benefits.

Reliance solely on the underemployment criterion would select more counties with low median income, high outmigration and high rurality than did past EDA criteria. Only 24 of the 40 counties receiving Title I and IV benefits in the 1965-66 would have qualified based on the underemployment criterion alone--hence 12 new counties would receive special benefits if underemployment were the sole criterion. Two more of the 40 most rural counties would have received special benefits if underemployment were the sole criterion.

Pennsylvania. This state shows a closer positive association between underemployment and other criteria than found in other states. This homogeniety resulted in over four-fifths of the 49 respective counties with the highest unemployment and underemployment, lowest median income and highest

incidence of poverty being included for EDA special benefits. Use of underemployment as the sole criterion would have selected even more counties with greatest need, based on median income and poverty, and fewer counties with high unemployment. One additional rural county would be included if the sole criterion were underemployment.

Idaho. The EDA criteria seemed to select counties based on the unemployment criterion. Only 3 of the 15 special EDA counties were also among the 15 counties ranking lowest in median income and highest in incidence of poverty.

Sole use of the underemployment criterion would have included 8 of the 15 counties ranking highest in need, and would have included only 1 of the counties with the highest unemployment. The same number (7) of the most rural counties would have been included based on underemployment as were actually made eligible for EDA special benefits.

Arizona. EDA criteria apparently emphasized unemployment and poverty in Arizona. Only 2 of the 7 counties receiving special benefits were also among the 7 counties with the highest labor potential as measured by underemployment.

Compared to actual special EDA designated counties, use of the underemployment would have included the same number (4) of the counties with the low median income but one less county with the highest incidence of poverty and rurality.[5] Outmigration appears to be a separate dimension from the other criteria in Arizona. If outmigration is a serious problem that justifies EDA aid, the criterion would have to be used explicitly because no other criterion recognizes high outmigration from counties.

Illinois. The EDA criteria in Illinois seem to weight unemployment and median income most heavily in choosing EDA counties. Of the 31 counties receiving aid, 18 of these were characterized by high unemployment and 17 were counties with low median income. Only 11 of the 31 counties that had the highest incidence of poverty were receiving aid in 1965-66. Use of the sole criterion of underemployment would have included 22 counties with the highest need measured by median income, whereas the sole criterion of unemployment would have included only 16 of the 31 counties with lowest median income. Underemployment criterion would have directed aid to 7 additional counties with the highest incidence of poverty and 9 additional rural counties. Thus in Illinois, an EDA criterion based on

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[5] Although the same *number* of highly rural counties are included, these four rural counties might not be the same ones as before. It is also emphasized that analysis based on the number of counties does not bring out the heterogeniety within counties or the absolute number of needy persons within counties.

underemployment would have selected away from unemployment and more towards poverty and rural counties.

North Carolina. North Carolina is unique; it is the only state in the sample where EDA special benefit counties include a higher percentage of the 30 counties with greatest underemployment than with the greatest unemployment. Selection of 30 counties on the basis of underemployment alone would have substantially increased the proportion of counties with the lowest median income and highest poverty receiving special benefits. Only 9 of the 30 counties with the most unemployment would have been included, however. A higher proportion of rural counties would have been included by using the underemployment criterion than by using the unemployment criterion of actual EDA criteria.

SUMMARY AND CONCLUSIONS

This study provides insights into what criteria were in fact used by the EDA to designate counties for Title I and IV benefits under the Public Works and Economic Development Act of 1965. Concurrently, the study provides insights into the incidence of special designation if alternative criteria were used. Since the Economic Development Administration focuses efforts on bringing jobs to people rather than people to jobs, and is more concerned with attracting jobs than providing welfare payments, schooling or job information; the underutilized labor force potentially available for employment in a county would appear to be a felicitous criterion. Underemployment measures include both the unemployed and persons who are working at jobs that do not adequately compensate for their capabilities based on education, age and other standards.

The empirical analysis for six states indicates the underemployment criterion has merit; it selects counties with labor potential as well as need. Data for the six states link unemployment most closely to past EDA designated counties; hence this criterion appears to have been given greatest weight. Yet unemployment is not closely related to need as measured by median income or incidence of poverty and is little related to unutilized labor potential as measured by underemployment. The unemployment criterion selects relatively more urban counties where income and labor force participation are higher than in rural counties.

Table 1 and, to a lesser extent, Table 2 suggest there are two dimensions to the criterion considered: (1) unemployment, and (2) all other criteria. That is, the criteria other than unemployment are significantly related to each other and the underemployment criterion alone tends to select counties not only with the most underutilized labor but also with the greatest need and outmigration. On the other hand, selection of counties on the basis of highest unemployment tends to leave out the counties with greatest cronic problems as reflected in the other criteria consideration.

Availability of underemployment criterion only for census years is one argument against its use. The counter argument is that EDA programs are not geared to deal with short-term changes in the local economy as reflected in current unemployment data. Rather the programs are best suited to attack long-term problems such as underemployment and the low income and poverty that data in this paper show attend underemployment.

Finally, research resources precluded an analysis of all states, and only six were included in our analysis. While we believe that these six states reasonably represent the heterogeneity as well as general tendencies likely to appear in analysis of all states, a more comprehensive analysis of all states would be useful.

REFERENCES

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