CODEBOOK SUPPLEMENT

APPENDIX #13

The material which follows was taken from An Empirical Analysis of the Dual Labor Market Theory, Paul J. Andrisani, Ph. D. dissertation, The Ohio State University, May, 1973.

APPENDIX A

EXAMINING THE OPERATIONAL DEFINITION OF PRIMARY AND SECONDARY JOBS

Since the literature has not provided an acceptable operational definition of primary and secondary jobs, it was proposed that the primary/secondary character of jobs be measured in terms of the 3-digit occupations and industries of the respondents. Census records for 1959 classify 3-digit occupations and industries by the median earnings of workers. Thus, both occupations and industries can be ranked in terms of these median earnings.[1]

To examine the extent to which these rankings proxy for such characteristics as turnover, job security, rankings in years other than 1959, industry concentration, unionization, and job status, an attempt was made to correlate the scale components with occupation/industry statistics available from published sources. The median earnings of workers in each industry were correlated with:

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[1] U.S. Bureau of the Census, U.S. Census of Population: 1960, Subject Reports, Occupational Characteristics, op. cit.; and U.S. Census of Population: 1960, Subject Reports, Industrial Characteristics, op. cit.

a) Turnover Rates by Industry in October, 1969.[2]
b) Percent Employed 50-52 Weeks by Industry in 1959.[3]
c) Average Hourly Earnings by Industry in October, 1969.[4]
d) Average Weekly Earnings by Industry in October, 1969.[5]
e) Concentration Index by Industry.[6]
f) Collective Bargaining Coverage by Industry in August, 1963.[7]

The zero-order correlation between each of these variables and median earnings of workers in an industry in 1959 were as follows:

$r_a = -0.49826$
$r_b = 0.50386$
$r_c = 0.65657$
$r_d = 0.63648$
$r_e = 0.38817$
$r_f = 0.37686$

where $r_a \ldots r_f$ represents the correlation of each variable (a) through (f) above with median earnings by industry.

Median earnings of workers by occupation were also correlated with the percent employed 50-52 weeks by occupation in 1959,[8] and the socio-economic status of occupations.[9] The correlations were found to be:

$r_g = 0.57916$
$r_h = 0.81005$

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[2]See U.S. Bureau of Labor Statistics, Employment and Earnings, XV (December 1969), pp. 124-128.

[3]U.S. Bureau of the Census, op. cit.

[4]Employment and Earnings, op. cit., pp. 101-113.

[5]Ibid.

[6]Leonard W. Weiss, "Concentration and Labor Earnings," American Economic Review, LVI (March 1966), footnote 7, p. 102.

[7]Ibid.

[8]U.S. Bureau of the Census, op. cit.

[9]Duncan, "A Socioeconomic Index for All Occupations," op. cit.

where r_g represents the correlation between employment stability and median earnings by occupation and r_h represents the intercorrelation between occupational prestige and median earnings.

Each of the intercorrelation matrices generated by the analyses above was then factor analyzed to ascertain whether a common factor was represented by each of the scale components.[10] The factor analysis of the seven industry characteristics yielded the following:[11]

Variables	Factor I	Factor II
1 Median Earnings of Workers by Industry, 1959	0.74728	0.25230
2 Turnover Rate by Industry in October, 1969	-0.74117	0.12492
3 Percent Employed 50-52 Weeks by Industry, 1959	0.33724	0.96381
4 Average Hourly Earnings by Industry, October, 1969	0.93577	-0.23920
5 Average Weekly Earnings by Industry, October, 1969	0.92813	-0.23102
6 Concentration Index by Industry	0.51896	0.13062
7 Collective Bargaining Coverage by Industry, 1963	0.50151	-0.10072

Factor I explained 50 percent of the total variance, and Factor II accounted for an additional 16 percent. While a single common factor was not obtained, only variable (3) appears to be representing Factor II. Median earnings by industry, however, does appear to be a reasonable surrogate for Factor I which represents a combination of each variable with the possible exception of variable (3).

Since correlations between industry median earnings and industry concentration, and industry median earnings and collective bargaining coverage were smallest in magnitude, a second factor analysis of the

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[10] Since data from published sources and the Weiss Appendix were not always complete for all 3-digit industries, missing data correlations were generated to utilize the entirety of available information.

[11] In this case, and in each of the factor analyses to follow, additional factors are not shown where their individual contribution to total variance is 5 percent or less.

industry dimensions without these two variables was attempted. The results were as follows:

Variables	Factor I	Factor II
1 Median Earnings of Workers by Industry, 1959	0.78876	0.44886
2 Turnover Rate by Industry in October, 1969	-0.69765	0.10870
3 Percent Employed 50-52 Weeks by Industry, 1959	0.26172	0.66156
4 Average Hourly Earnings by Industry in October, 1969	0.96423	-0.24121
5 Average Weekly Earnings by Industry in October, 1969	0.94164	-0.23233

Factor I accounted for 60 percent of the total variance and Factor II contributed an additional 15 percent. Once again, percent employed 50-52 weeks in 1959 does not appear to be an important component of Factor I which primarily represents the remaining four variables. Since Factor II is essentially a combination of variables (1) and (3), however, it seems reasonable to conclude that median earnings is a reasonable surrogate for all four variables because of its high loadings on Factors I and II, and due to the preponderance of cumulative variance accounted for by these two factors.

The three occupational characteristics yielded the following through factor analysis:

Variables	Factor I
1 Median Earnings of Workers by Occupation, 1959	0.86506
2 Percent Employed 50-52 Weeks by Occupation, 1959	0.68791
3 Socioeconomic Status of Occupation	0.93680

Since each of the variables is highly loaded on Factor I, it may be inferred that Factor I represents each of these variables and that the scale component is a reasonable proxy for Factor I. The amount of variance explained by this factor was 70 percent.

After concluding that the two components of the scale were each "reasonable representatives" of several important dimensions of the degree to which a job is primary or secondary, the scale itself was then correlated with each of the two components, 1968 hourly rate of pay for male youths in the total cohort of young men, and the socioeconomic status of the occupation of each of these youth. A universe of 3,640 subjects was obtained of whom 2,653 were white and 987 were black. The results were as follows:[12]

Correlations between the scale and:[13]	WHITES	BLACKS
1 Median Earnings of Workers by Industry, 1959	0.69519	0.65206
2 Median Earnings of Workers by Occupation, 1959	0.70688	0.64479
3 1968 Hourly Rate of Pay	0.43102	0.38138
4 1968 Socioeconomic Status of Occupation	0.59463	0.49907

The high correlations between each of these four variables and the scale suggested that all five variables constituted a common factor. To examine this further, a factor analysis for whites and blacks was performed. The results are presented below:

Factor Analysis of the Scale, its Components, and Labor Market Success

Variable 1 Labor Market Sector, 1968
Variable 2 Median Earnings by Industry, 1959
Variable 3 Median Earnings by Occupation, 1959
Variable 4 Respondents' Hourly Rate of Pay, 1968
Variable 5 Respondents' Occupational Prestige, 1968

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[12] The scale was coded as follows: secondary job = 1, intermediate job = 2, primary job = 3.

[13] In order to derive these correlations, each respondent was assigned a score on the scale depending on the industry and occupation of his 1968 job. See Chapter III for a discussion of the cutoff points used to assign these scores. Also, each respondent was assigned the median earnings in 1959 for the particular industry and occupation in which he worked in 1968.

Vbl.	Whites Factor I	Vbl.	Blacks Factor I
1	0.77329	1	0.78395
2	0.87232	2	0.75223
3	0.91766	3	0.85284
4	0.49911	4	0.47347
5	0.82840	5	0.69444

Some support for this notion is obtained by the fact that total variance attributable to Factor I was 63 percent for whites and 52 percent for blacks. The scale variable (1) is highly loaded on the common factor for both color groups as are the remaining four variables, suggesting further that the scale is proxying for the primary, intermediate, and secondary nature of jobs.

The last step in the analysis of the scale consisted of a judging by eleven persons knowledgeable in the subject of labor markets. Mr. William Papier, Director of Research and Statistics, Ohio Bureau of Employment Services, and seven of his staff members selected from the Counseling and Training Sections of the OBES, rated 60 occupation/industry combinations as 1 if "secondary," 2 if "intermediate," 3 if "primary," and -1 if "uncertain." Three members of the Center for Human Resource Research staff also participated in the ratings. Each of the 60 combinations of occupation and industry was randomly selected from the universe of 3,640 youths. The correlations between the scale's estimation of these 60 jobs and the eleven judges' were:

$r_1 = 0.81180$
$r_2 = 0.50747$
$r_3 = 0.52418$
$r_4 = 0.78602$
$r_5 = 0.76380$
$r_6 = 0.61060$
$r_7 = 0.74378$
$r_8 = 0.60802$
$r_9 = 0.76380$
$r_{10} = 0.81510$
$r_{11} = 0.89471$

Again, the correlations suggested the possibility of a common factor representing the scale and the judges' subjective evaluations. A factor analysis of the intercorrelation matrix yielded the following results:

Variable	Factor I
Scale	0.86829
Judge 1	0.88616
2	0.72698
3	0.76267
4	0.85566
5	0.89735
6	0.82754
7	0.78317
8	0.64490
9	0.82732
10	0.78263
11	0.90911

The cumulative proportion of variance explained by this factor was 67 percent, and, as the high loading suggests, the scale appears to be a reasonable surrogate for it. Since each of the judges' scorings was highly loaded on factor I, it also appears that this factor represents the subjective evaluation of each of the judges.

In conclusion, the scale devised for ranking jobs as primary, secondary, or intermediate appears to be consistent with the dimensions suggested by dualists. It also appears to represent the subjective evaluation of judges as to whether a job is primary, secondary, or intermediate, and to effectively discriminate between favorable and unfavorable labor market experiences.