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A NOTE ON JOHN KAIN'S "HOUSING SEGREGATION, NEGRO EMPLOYMENT
AND METROPOLITAN DECENTRALIZATION"

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by Paul Offner and Daniel H. Saks

In a recent article appearing in this Journal,¹ John Kain estimated the effect of residential segregation on relative Negro employment in various neighborhoods of two metropolitan areas, Chicago and Detroit. He concluded among other things that had Negroes been evenly distributed among the residents of Chicago in 1956, they might have had between 22,157 and 24,622 more jobs. This result has subsequently been used in the advocacy of certain public policies.²

In this paper, using Kain's data for Chicago and using what we take to be a more explicit and appropriate specification of the relevant theory we arrive at opposite empirical results, i.e. the removal of residential segregation might have resulted in a net job loss for Chicago in 1956. Not only do we show that Kain's results are extremely sensitive to specification error, we also suggest that (other things constant) the appropriate theory predicts a shift in the Negro occupational mix towards the lower status occupations as residential segregation decreases. Thus desegregation may impose some frequently overlooked economic costs on Negroes.

¹"Housing Segregation, Negro Employment, and Metropolitan Decentralization," LXXXII (May, 1968), pp 175-197.

²See John Kain and Joseph Persky, "The Future of the Ghetto: I. Alternatives to the Gilded Ghetto." Public Interest, 14, (Winter, 1969) pp 74-83.

I. THEORY

According to Kain, the residential segregation of Negroes within a metropolitan area³ has two types of relative-employment effects. On the supply side, residential segregation may force Negroes to live further from jobs than they would otherwise.⁴ This extra distance would increase both the costs of transport to work and the costs of searching for employment. This effect would be moderated to the extent that firms with large demands for, say, unskilled labor locate closer to the homes of the relatively unskilled Negro labor force. On the demand side, the Negro percentage of the residents in any neighborhood is, to quote Kain,

a proxy for the employers' propensity to discriminate in favor or against non-white workers because of real or imagined attitudes of the resident population toward the employment of Negroes. Businesses located in the ghetto, and particularly those selling predominately to ghetto residents, would be expected to hire disproportionate numbers of Negroes. Similarly, retailers and others located in all-white suburbs and having few or no Negro customers may feel some reluctance to employ Negroes in sales and other contact jobs.⁵

³Residential segregation is an exogenous variable defined in terms of the geographic distribution of Negro residents within a city. The absence of residential segregation is said to exist when the ratio of white to Negro residents is constant for all neighborhoods of the city. This is, of course, an extremely narrow definition of segregation since white-Negro differences in income, class, occupation, and culture would cause the residence ratio to vary even in the absence of what is ordinarily thought to be residential segregation. In theory, it might be possible to control for such differences by normalizing the two populations and by appropriately defining neighborhoods. In practice, we simply adopt the narrow definition of segregation as a matter of convenience.

⁴Of course, it could just as well make them live closer to certain kinds of jobs.

⁵Kain. op. cit. p. 180.

To test his hypotheses, Kain determines whether $\beta_1 > 0$ and $\beta_2 < 0$ in the following equation estimated by ordinary least squares from data on workplace zones in Chicago in 1956:⁶

$$1) \quad W = a + \beta_1 R + \beta_2 D_n;$$

where W = % of zone i 's workers who are Negro,

R = % of zone i 's resident workers who are Negro,

and D_n = distance to the nearest Negro ghetto.

⁶One should note that the coefficient of determination for equation 1) may not be an entirely reliable indication of the behavioral significance of equation 1) since measured R (only a proxy for the Negro percentage of the population) is a large definitional component of measured W . Let

$W_{N,W}^{r,o}$ = the number of workers in a workplace zone who are residents if the superscript is r , outsiders if the superscript is o and who are Negro if the subscript is N and white if the subscript is W . Thus

W_W^r = number of white resident employees. Therefore,

$$W = \frac{W_N^r + W_N^o}{W_{W+N}^r + W_{W+N}^o} = \frac{1 + \frac{W_N^o}{W_N^r}}{1 + \frac{W_{N+W}^o}{W_{N+W}^r}} \cdot \frac{W_N^r}{W_{N+W}^r} = \left(\frac{1 + \frac{W_n^o}{W_n^r}}{1 + \frac{W_{N+W}^o}{W_{N+W}^r}} \right) R$$

Letting i_n = the ratio of imported to resident Negro workers and substituting for W , Equation 1 becomes

$$1a) \quad \left(\frac{1 + i_n}{1 + i_{n+w}} \right) R = a + \beta_1 R + \beta_2 D_n$$

This does not mean that the relationship between R and W is without interest. It does mean that the size of the coefficient of determination is not, contrary to Kain (cf. pp. 182, 184), a test of the adequacy of his specification in equation 1).

Kain then uses equation 1) to estimate what W would have been in the absence of residential segregation by setting R equal to the nonwhite percentage of total employment and setting D_n equal to zero. Estimated W is then compared with actual W for Chicago in 1956 to produce his estimate of job loss due to residential segregation.

Kain's equation is misspecified in terms of his own hypothesis about the effect of residential segregation on the relative demand for Negro labor. In his own words (see above, P. 1), firms in predominantly Negro areas will "hire disproportionate numbers of Negroes" [italics added]. This must surely mean that as R increases, W increases more than proportionately and that a linear form for equation 1 is incorrect and inconsistent with his hypothesis. Since a non-linear specification leads to results regarding the relative employment effects of residential segregation which are in contradiction to Kain's, it is important to see whether a justification for this specification can be derived from some relatively simple behavioral assumptions.

A single equation, $W = f(R, D_n)$, will not allow us to identify the structure of the supply and demand curves comprising an urban labor market. Rather, if we assume the market is in equilibrium, $W = f(R, D_n)$ will be the equation for W along the locus of intersections of relative supply and demand curves for Negro labor as R and D_n vary. This can be illustrated with figures 1a and 1b which depict the relationship between W , R , and I (the Negro wage divided by the white wage). Figure 1b represents Kain's hypothesis about disproportionate hires since $\frac{\partial^2 W}{\partial R^2} > 0$. Figure 1a shows a set of relative supply and demand curves for Negro labor as R increases by constant amounts from R_0 to R_2 . We seek a theory to explain why

% Negro Employment

W

% Negro Employment

W

% Negro Residents

R₁

R₂

R₃

F₁

F₂

F₃

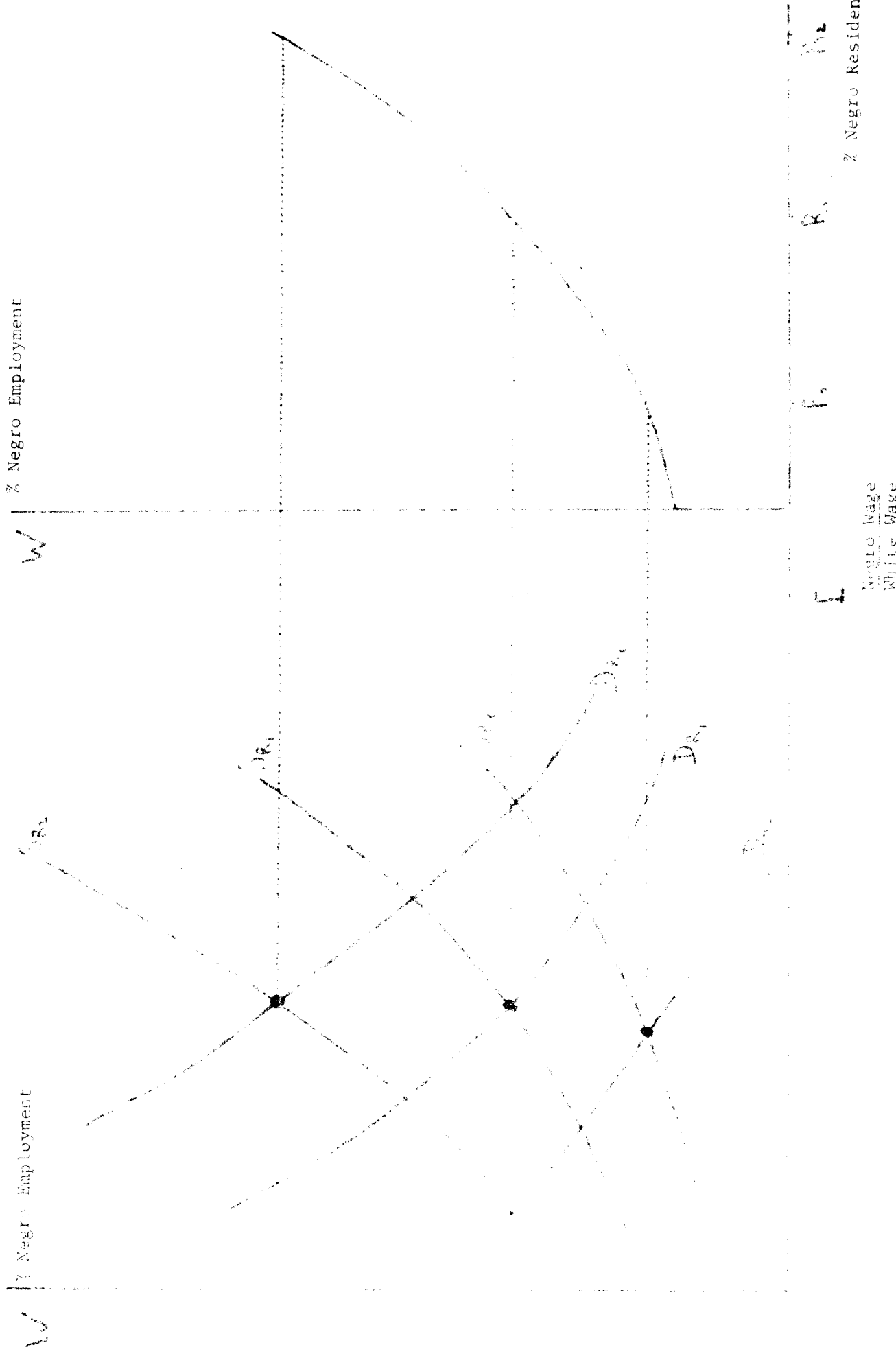
F₄

F₅

Negro Wage
White Wage

FIGURE 1b

FIGURE 1a



increases in R might, VIA consumer discrimination, cause shifts in the relative supply and demand curves of figure 1a which would be consistent with the relationship in Figure 1b. Such a theory will be sufficient to explain the curvature of Figure 1b if the following conditions are met:

a) equal increases in R cause accelerating upward shifts in the supply and demand curves and b) the absolute values of the slopes of the curves in Figure 1a at points along the equilibrium path will be the same or increasing with increases in R.⁷

⁷We derive these conditions from the following:
 In general form we take the relative supply and demand functions to be $I_D = D(W,R)$ and $I_S = S(W,R)$. In equilibrium, $I_D = I_S$ so that $D(W,R) = S(W,R)$. Differentiating this equilibrium condition totally gives:

$$D_W dW + D_R dR = S_W dW + S_R dR.$$

Solving for $dW/dR = \frac{S_R - D_R}{D_W - S_W} = \frac{(-) - (+)}{(-) - (+)} > 0$ with well-behaved demand and

supply curves. This is the result which Kain tested and it does not depend on the existence of discrimination since D_R could be zero and the result would still hold because of the availability of more local Negroes with increases in R. We propose to show that where consumer discrimination depends on the racial composition of the neighborhood in which the firm is located, $\frac{d^2W}{dR^2} > 0$. From our above result, we find that

$$\frac{d^2W}{dR^2} = \frac{(D_W - S_W) (S_{RR} - D_{RR}) - (S_R - D_R) (D_{WR} - S_{WR})}{(D_W - S_W)^2}.$$

A sufficient condition, and incidently an extremely strong one, for

$\frac{d^2W}{dR^2}$ to be positive would be for $S_{RR} < 0$ and $D_{RR} > 0$ (accelerating upward

shifts in the curves of Figure 1a and $D_{WR} > 0$ and $S_{WR} < 0$ (the absolute values of the slopes of the curves in Figure 1b at points along the equilibrium path will be the same or increasing with increases in R.) Our theory must show how changes in R will cause via consumer discrimination the appropriate shifts in the relative supply and demand curves to produce $d^2W/dR^2 > 0$ (the desired curvature of Figure 1b.)

In the absence of discrimination, conditions a) and b) are not likely to be met. The relative demand curve should be independent of R and would probably be vertical if Negroes and whites were perfect substitutes in employment. The supply curve should shift upwards as R increases since more local Negroes would be available, but there is no reason to imagine that these shifts would be other than equal and parallel if transport costs were the same for all. We, therefore, expect Figure 1b to be linear in the absence of discrimination.

We now wish to show how discrimination could cause shifts in the relative demand curve so that the demand portions of conditions a) and b) will be met. To do so, we will make extensive use of concepts developed by Becker in his Economics of Discrimination.³

Define the coefficient of consumer discrimination, d_c , as the percentage price discount necessary to induce purchases by a consumer who is disturbed by the racial composition of a firm's workforce. Assume that in the long run, people typically regard the racial composition of their own neighborhood (R) as normal and satisfactory. If a consumer's discrimination coefficient for a particular firm is proportional to the "unsuitability" of that firm's racial composition, then $d_c = a(R_f - R)$ where R_f is the Negro percentage of a firm's workforce. $(R_f - R)$ is a measure of the racial abnormality of a firm's workforce and a can be thought of as a consumer's response to that perceived abnormality. a would be higher towards firms with large numbers of employees in those sensitive occupations where prejudice against minorities is greatest.

³ See Gary Becker. The Economics of Discrimination. Chicago: University of Chicago Press. 1957. pp. 137.

From the point of view of the firm, what is the expected coefficient of consumer discrimination (\hat{d}_c) it is likely to face from local customers? To simplify, assume that a's for all whites (a_w) are ^{equal and} positive and the a's for Negroes (a_n) are equal but of opposite sign ($a_n = -a_w$) so that Negroes prefer to buy from their own race. Further, assume that all members of a metropolitan area have a's of the same magnitude for any industry or occupation. The expected a (call it \hat{a}) for any firm will be the a's of its customers weighted by the probability of drawing such customers or $P(a_n)a_n + P(a_w)a_w = \hat{a}$. The probability of randomly drawing an a_n (a Negro customer) is R . The probability of drawing an a_w is $1 - R$. On substituting,

$$\hat{a} = R(-a_w) + (1 - R)a_w = (1 - 2R)a_w \quad \text{and}$$

$$\hat{d}_c = \hat{a} (R_f - R) = a_w(1 - 2R)(R_f - R).$$

Thus, the expected coefficient of consumer discrimination for a firm is partially under the firm's own control because the firm determines R_f or the racial mix of its workforce. In determining R_f , a firm must consider its effect on total revenues and profits. The marginal coefficient of consumer discrimination (MCD) for changes in R_f is $\frac{\hat{a}}{a}$ since

$\frac{\partial \hat{d}_c}{\partial R_f} = (1 - 2R)a_w = \hat{a}$. MCD times total revenue will be the marginal dollar cost to the firm for excessive minority employment by that firm.

The marginal cost of overhiring the local minority (Negroes in white areas or whites in Negro areas) increases as an area becomes more homogeneous (i.e. as R approaches 0 or 1.)⁹ Firms will overhire

minorities only to the extent that such minorities can, through lower wages,

⁹ Because of the symmetry in the formulation of the effects of discrimination, the sign of the marginal cost for overhiring the minority is somewhat confusing. \hat{a} goes linearly from $+a$ to $-a$ as R goes from 0 to 1 and is equal to 0 at $R = .5$. (Remember R is defined as the percentage of the local population which is Negro.) When \hat{a} is negative, $(R_f - R)$ is also negative since one is then discussing overhiring of whites in Negro areas (such a statement implies $R_f < R$ or fewer Negroes than the local population would suggest is appropriate.)

compensate the firm for its losses on the revenue side. To the extent that firms or their employees have their own additional prejudices against a minority, this compensation would have to be even greater.¹⁰

We can relate this analysis to condition a) above that increases in R cause accelerating upward shifts of the demand curve of Figure 1a. Given the relationship between MDC and R that we have shown, it becomes more and more costly for firms in increasingly Negro areas to have a workforce that is not as Negro as is the area. Therefore, as R increases, the relative demand for Negroes must increase more than proportionately. This effect will be larger if a is larger (i.e. for higher status occupations), and if an industry is more dependent on local markets. Also, given the way R_f affects profits, fairly competitive industries in racially homogeneous areas will tend only to have employers who would discriminate against the minority in that area. (Discrimination the other way becomes too costly and will drive such employers out.) Thus employer discrimination is only likely to accentuate the effects of consumer discrimination.

Further, it may well be that a neighborhood's racial composition is related

¹⁰ More formally, let the profits function for a firm be

$$\pi = x.p(1 - \frac{A}{d_c}) - E_w L(1 + R_f d_e) - K$$
 where π = profits, x = units of output, p = price per unit output, E_w = earnings of white laborers, L = total number of laborers, $R_f = \frac{L_n}{L}$ or the percentage Negro laborers in the firm, $d_e = \frac{E_n - E_w}{E_w}$, and K = cost of other factors. The second term on the right hand side is equivalent to the wage bill or $E_n L_n + E_w L_w$. Among the first order conditions for a profit maximum, $\frac{\partial \pi}{\partial R_f} = 0$ implies that $x.p.MDC = -d_e . E_w . L$ or the condition that minorities must reimburse the employer for any deleterious effect on the firm's revenues.

to the length of time that there have been Negroes in the area. If employers adjust to the changing ethnic composition of the area largely through new hires, it may take some time for the adjustment to take place. Where a neighborhood is heavily Negro, employers would have had considerable time to adjust to the new discrimination coefficient. In mixed neighborhoods, the influx of Negroes is probably of recent occurrence (given the tendency for neighborhoods not to remain mixed for long) and employers may have been unable to adjust fully. All of these factors will accentuate the increasing shifts in relative demand as R increases.

The effect of discrimination on the slope of the shifting aggregate relative demand curve (condition b) depends on the fact that the relative labor demand curve for the firm will be kinked at $R_f = R$. The consumer discrimination will act as a subsidy for hires of the majority and as a tax on hires of the minority at that point. The aggregate relative demand curves for firms in white areas (small R) will tend, because of these considerations to be concave to the origin (flatter to the left of R and steeper to the right) and the demand curves in Negro areas will tend to be convex. This will tend to reinforce the effects displayed in figure 1a since consumer discrimination will tend to put firms to the left of R on their demand curves in white areas and to the right of R in Negro areas.

The reasons why the shifts in the supply curve will meet our two conditions a) and b) are somewhat more conventional. The curve will shift upwards because of the local availability of more Negroes and the rate of shifting is likely to be accelerating because employees are more likely to prefer to work where they are not discriminated against. The

slope should increase as more local Negroes are forced to compete with each other for the local jobs.¹¹

EMPIRICAL RESULTS

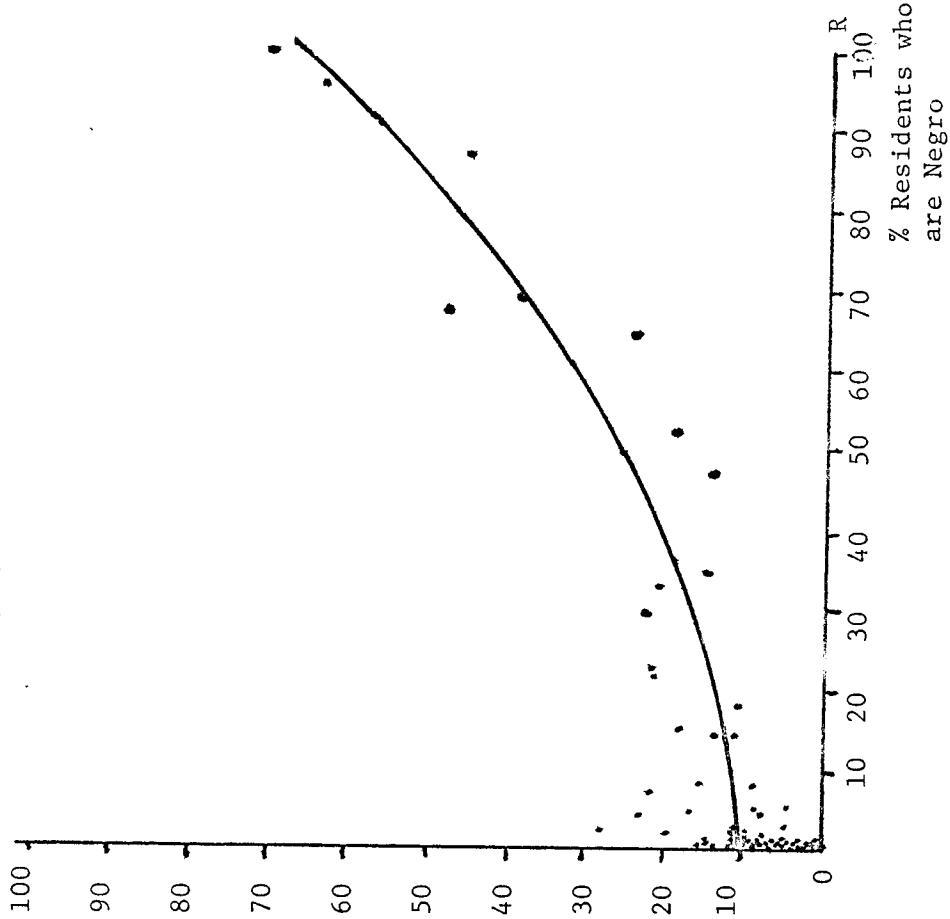
We have argued that the relationship between W and R is likely to be non-linear if consumer discrimination based on the racial composition of a neighborhood works the way we have hypothesized. An easy way to measure this non-linearity and still permit direct comparisons with Kain's results is to fit an equation for W which is quadratic in R . Such a specification provides us with a simple criterion for determining whether our specification is superior to Kain's. We need only test for the statistical significance of the coefficient on the quadratic term. Further, the size of that coefficient is an indication of the degree of non-linearity which is useful in comparing results for different occupations and industries. In this section, we present our estimates of the non-linear form for the aggregate relationship between W and R and then we discuss our results for different occupations and industries. We use the data provided by Kain for Chicago workplace zones in 1956.

Equation 2a below is Kain's Equation 1 for Chicago; Equations 2b and 2c are the same relationship in quadratic form.

| | | | | | Coefficient of Determination | | | |
|---|--------------------------|---|---------------------|---|---------------------------------|-----|------------------|-----|
| 2 | a) $w = 9.18$ (10.7) | + | $.46R$ (15.6) | - | $.52Dn$ (4.3) | .78 | | |
| | b) $w = 10.84$ (12.8) | + | $.049R$ (0.6) | + | $.005R^2$ (4.8) | - | $.67Dn$ (5.9) | .83 |
| | c) $w = 11.08$ (15.4) | + | $.006R^2$ (18.0) | - | $.69Dn$ (6.5) | .83 | | |

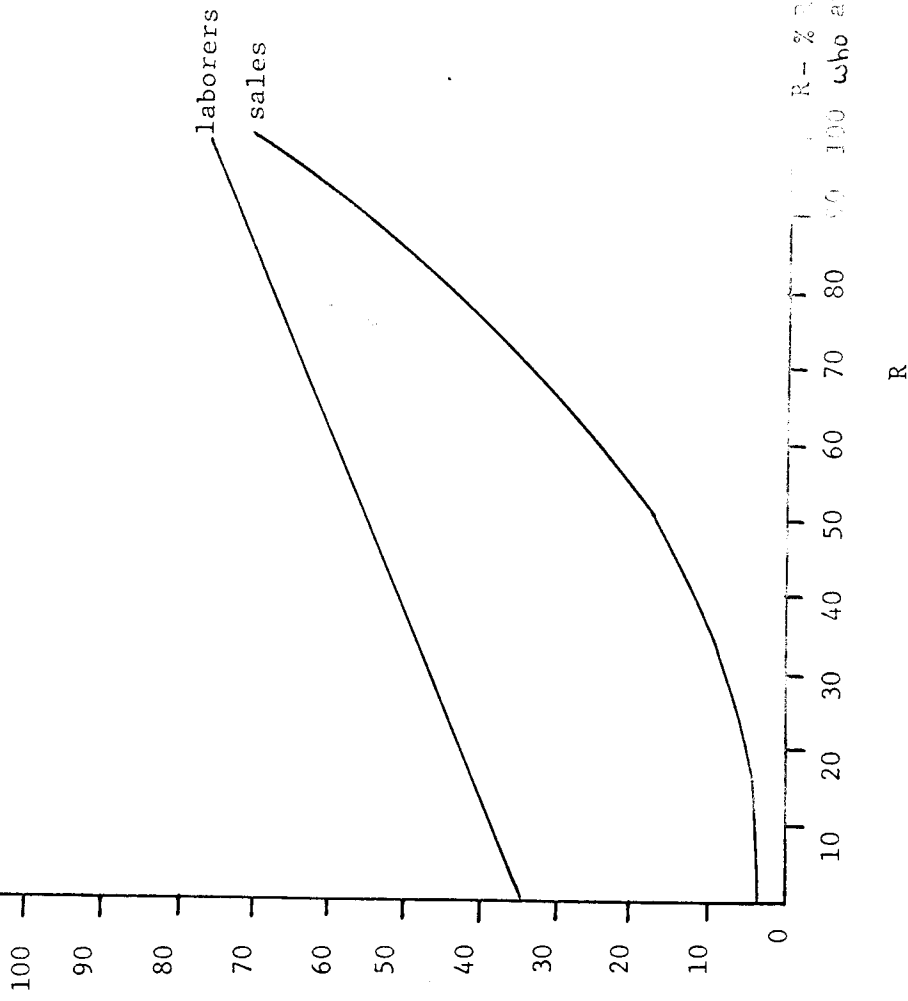
¹¹ Notice that the distinctness of Negroes as a group within the labor force (which underlies the notion of competition among them) is a result of the discrimination against them in the labor market.

W = % Negro Employment



AGGREGATED SCATTER FOR W AND R

\hat{W} = Percentage Negro Employment



DISAGGREGATED ESTIMATES FOR W AND R

These results strongly suggest that the relationship is indeed non-linear. When the R^2 term is added to the variables in 1a, the coefficient on R is no longer significantly different from zero whereas the coefficient of R^2 is significant. 4b can therefore be referred to 4a at the 95 percent level of confidence. Figure 2 is a scatter of Equation 2b.

This change in specification has an important effect on Kain's conclusion that Chicago's Negroes would have had up to 24,622 more jobs if there had been no racial segregation. Following Kain's procedure, we substitute in equation 2b the actual percent non-white employment in the Chicago Metropolitan Area for R and set D_n equal to zero to estimate the expected percentage of non-white employment in the absence of residential segregation.

Metropolitan Area Employment

| Equation | Actual | | Estimated (no segregation) | | |
|----------|-----------|------------|----------------------------|----------------------|----------------------------|
| | Total | %Non-white | %Non-white | $\Delta\%$ Non-white | Δ Non-white employ. |
| 2a | 1,760,148 | 14.61 | 15.87 | 1.26 | 22,157 |
| 2b | 1,760,148 | 14.61 | 12.64 | -1.97 | -34,675 |
| 2c | 1,760,148 | 14.61 | 12.36 | -2.25 | -39,603 |

Our estimates suggest that an end to housing segregation would have resulted in a substantial loss of employment by Negroes instead of the job gain which Kain's less satisfactory equation predicts. This result should be taken very cautiously, the main point being that Kain's estimates are extremely sensitive to the manner in which the regressions are specified. (Both Kain's and our estimates of the Non-white employment change are significantly different from zero at the 95 percent level.¹²

¹²The standard error of Kain's estimate is .545; that for our estimate (4b) is .874. This standard error is derived from a calculation of the variance of estimated W minus actual W .

Our result is not surprising. If employment discrimination really occurs in the manner suggested, then a redistribution of Negroes proportionately throughout the population would result in a sizeable job loss in areas which are now heavily Negro -- and which therefore discriminate in favor of the local Negro majority -- and a smaller job gain in white areas where Negroes would then be only a relatively small percentage of the population and would most likely still suffer discrimination.

We move now to an examination of the results for the different occupations and industries. We do this for a number of reasons. First, examination of the different occupations and industries will provide us with some independent evidence on the validity of our theory. It could be that the overall relationship is non-linear because of differences in the industrial and occupational mix between white and Negro areas. If the industries which predominate in white areas have a small constant (linear) slope for W on R , and those which predominate in Negro areas have a steeper slope, this will give us the non-linearity observed in the overall relationship. The disaggregated equations should help to control for this. Moreover, if the non-linear specification is preferable, as we have suggested, the relationship should be most non-linear in higher status occupations where prejudice regarding the employment of Negroes would be greatest (i.e. where \underline{a} is greatest.) Second, we have already seen that on leaving the ghetto, Negroes would lose some jobs in their old residential areas and might gain some in the areas to which they are moving. We now ask whether the new jobs are worth more or less than the jobs lost.

TABLE II

| Occupation | Constant | R | R ² | DN | DM | Coefficient of Determination |
|--|----------------|-----------------|--------------------|-----------------|------------------|------------------------------|
| Professional Technical and Kindred Workers | 2.98 (.791) | -.154 (.081) | .0068 (.0010) | | -.140 (.083) | .79 |
| Managers, Officials and Proprietors | 2.20 (.626) | -.199 (.066) | .0077 (.0008) | -.168 (.084) | | .87 |
| Clerical and Kindred Workers | 3.80 (.853) | -.096 (.088) | .0077 (.0010) | | -.177 (.090) | .85 |
| Sales Workers | 1.83 (.847) | -.229 (.087) | .0088 (.0010) | | -.105 (.089) | .83 |
| Craftsmen, Foremen and Kindred Workers | 7.16 (.738) | -.024 (.076) | .0044 (.0009) | | -.361 (.077) | .77 |
| Operatives and Kindred Workers | 16.1 (1.55) | .332 (.159) | .0018 (.0019) | | -.864 (.162) | .67 |
| Service Workers Private Houses | 17.6 (1.85) | .148 (.195) | .0066 (.0023) | -.997 (.249) | | .69 |
| Laborers and Farm Workers | 34.9 (2.30) | .428 (.236) | -.0001 (-.0030) | | -1.873 (.241) | .62 |
| Industry | | | | | | |
| Manufacturing Durable Goods | 11.5 (1.28) | .109 (.131) | .0022 (.0015) | | -.598 (.134) | .54 |
| Manufacturing Nondurable Goods | 10.1 (1.22) | .277 (.125) | .0011 (.0015) | | -.646 (.128) | .66 |
| Transportation, Communication and Other | 6.47 (1.00) | .159 (.103) | .0019 (.0012) | | -.407 (.105) | .64 |

Standard errors in parentheses,

| Industry cont' | Constant | R | R ² | DN | DM | Coefficient of Determination |
|--|-----------------|-----------------|------------------|-----------------|-----------------|------------------------------|
| Retail Trade | 6.05 (1.05) | .158 (.111) | .0061 (.0013) | -.441 (.141) | | .84 |
| Finance, Insurance Real Estate, Professional, Services, etc. | 5.25 (1.20) | .165 (.127) | .0046 (.0015) | -.349 (.162) | | .73 |
| Wholesale Trade | 6.54 (1.19) | -.062 (.123) | .0050 (.0014) | | -.375 (.125) | .58 |
| Business Repair Personal Services, etc. | 20.78 (2.01) | -.042 (.212) | .0077 (.0025) | -1.03 (.270) | | .60 |
| Public Administration | 11.67 (1.56) | .288 (.160) | .0034 (.0019) | | -.663 (.164) | .69 |

Standard errors in parentheses.

Our results are reproduced in table 2. Two distance variables have been employed in the regressions reported there. D_n is the distance to the nearest Negro residence zone; DM is the distance to the major Negro ghetto. Following Kain, we report the estimates for whichever variable gave the best results. For the occupational equations, the squared term is significant in all cases except Operatives and Laborers - the two occupational groups where discrimination in favor of and against Negroes should be smallest. Figure 2b is a plot of the equations for sales and laborers and nicely illustrates the relation between non-linearity and discrimination. The industry results are less impressive, but this was to be expected since, as Kain points out, "all industries have some jobs, such as janitors and laborers, in which Negro employment is traditionally accepted." Nevertheless, it is reassuring that the coefficients of R^2 are largest in retail trade, Wholesale trade and Business, Repair, Personal Services, etc., and smallest in Durable and Nondurable Manufacturing.¹³

A more manageable way to look at these results may be to focus on the β_2 coefficient (this coefficient is, after-all, an index of non-linearity since $\frac{\partial^2 W}{\partial R^2} = 2\beta_2$.) In table 3 we have ranked the occupations and industries on the basis of this "coefficient of non-linearity."

| | β_2 | Rank | TABLE 3 | β_2 | Rank |
|------------------------|-----------|------|-----------------------|-----------|------|
| Sales | .0088 | 1 | Business Services | .0077 | 1 |
| Managers, Off. & Prof. | .0077 | 2 | Retail Trade | .0061 | 2 |
| Clerical | .0077 | 3 | Wholesale Trade | .0050 | 3 |
| Profess. Techn. | .0068 | 4 | Finance | .0037 | 4 |
| Service | .0066 | 5 | Public Administration | .0034 | 5 |
| Craftsmen | .0044 | 6 | Durable Manufacturing | .0022 | 6 |
| Operatives | .0018 | 7 | Transportation | .0019 | 7 |
| Laborers | .0001 | 8 | Nondurable Manu. | .0011 | 8 |

¹³ Interestingly enough, in the first four occupational categories the distance variable, insignificant in Kain's regressions, is now significant or almost significant in three cases out of four. Moreover, in the industrial category "Finance, Insurance, Real Estate, etc." we also find a significant coefficient for distance where Kain did not. These findings again suggest the superiority of our specification.

The highest ranks belong to those occupations and industries in which we would expect discrimination to be greatest, and the lowest ranks to those in which it should be least.¹⁴

Finally, table 4 summarizes our major findings for the occupations and compares them with Kain's. In column 1 we have reproduced from Kain's table 1 the actual percent nonwhite in each occupation in Chicago. Columns 2 and 3 show the expected percent nonwhite in each occupation on the assumption that nonwhites are distributed proportionately throughout the population. They were arrived at by substituting the actual percent nonwhite employment in Chicago for R in Kain's and our equations and assuming that distance from the major and nearest ghetto would be zero. Columns 4 and 5 show the job losses and gains that would be incurred by Negroes as estimated by Kain's and by our equations.

A comparison of columns 4 and 5 reveals that there is little difference between Kain's and our estimates in the Craftsmen and Foremen, Operatives, and Laborers categories. Both sets of estimates suggest that there would be little change in Non-white employment in these occupational

TABLE 4

| | Nonwhite Employ./Total Employ. | | | Jobs 2-1 (3-1) Jobs (O/S Est) | |
|-------------------------|--------------------------------|-----------|----------|----------------------------------|-----------|
| | Actual | Kain Est. | O/S Est. | (Kain Est) | (O/S Est) |
| Professional, Technical | 6.0 | 6.56 | 2.18 | +0.56 | -3.82 |
| Managers, Off. & Pro. | 4.2 | 6.12 | 0.93 | +1.92 | -3.27 |
| Clerical | 9.6 | 8.93 | 4.04 | -0.67 | -5.56 |
| Sales | 4.6 | 7.33 | 0.36 | +2.73 | -4.24 |
| Craftsmen, Foremen | 9.3 | 10.50 | 7.75 | +1.20 | -1.55 |
| Operatives | 21.6 | 22.50 | 21.33 | +0.90 | -0.27 |
| Service | 30.2 | 25.33 | 21.15 | -4.87 | -9.05 |
| Laborers | 41.5 | 41.05 | 41.13 | -0.45 | -0.37 |
| All Jobs | 14.61 | 15.87 | 12.64 | +1.26 | -1.97 |

¹⁴The high rank for wholesale trade may seem somewhat surprising until one realizes that about 50% of employment in this industry is in sales and clerical occupations in the Chicago SMSA in 1960.

groups. The remaining five categories are those in which discrimination in favor of, or against Negroes should be most important. It is in these categories that Negroes could be expected to lose most heavily by being distributed proportionately throughout the population. In three of these cases Kain's estimates show an increase in Non-white employment. In only one case out of five is there a significant estimated job loss. By way of contrast, our estimates point to sizable job losses in all five categories.

Summary and Conclusions

Kain's paper was one of the first to examine the effects of residential segregation on an urban labor market. Part of the significance of his analysis is its emphasis on the relative-employment effects of discrimination rather than the relative wage effects which are more important in dealing with larger regions. In this sense, it is a natural extension to urban economics of Becker's analysis of the economics of discrimination.

In this note, we have examined Kain's theory and argued that it suggests a non-linear relationship between W , the employment ratio, and R , the residence ratio. We have re-estimated the relation in a non-linear form and improved on his results. Moreover, we have found that a redistribution of Negroes throughout the population would result in relatively large Negro job losses where our theory would have led us to expect - in those occupations where discrimination is most important. In contrast, estimates from Kain's regressions show Negroes gaining jobs in several of these occupations.

Our results for total employment do not prove or disprove Kain's contention that Negroes suffer a job loss as a result of residential segregation. Our point was simply to emphasize the sensitivity of such estimates to the manner in which the relationship is specified. For a number of reasons we doubt that our results say much regarding the change in Negro employment that would follow the end of residential segregation. First, we doubt that the structure of the labor market would remain unchanged in the face of the major change that Kain envisions. After all, who is to say what attitudes would be toward the employment of Negroes after such a major social change. Second, we have no way of knowing whether the dynamic properties of the system would allow the labor market to achieve the equilibrium path described by our non-linear function. Third, the results may be affected by inadequacies of the data. Finally, we note that the assumption that Negroes be distributed proportionately throughout the population is conservative and that a different definition of integration would result in quite different results.

We have considerably more confidence in our findings for the occupations and industries. The main conclusion here is that whatever the change in overall Negro employment resulting from the end of residential segregation, there would be relative losses in the skilled and higher status categories. Policies aimed at fostering residential integration of our urban areas have a significant cost to Negroes that have received little attention in the past. These costs may be temporary and they may be small compared to the benefits, but they are still important.

Although our conclusion may seem rather surprising at first, we have shown that it is theoretically sensible. Moreover, it is certainly not novel since the literature on Negro ghettos frequently refers to the fact that historically Negroes have had their best chance of entering the skilled occupations in heavily Negro areas where they benefited from discrimination in their favor.¹⁵ Moreover, our finding is consistent with some fragmentary evidence based on other data.¹⁶

¹⁵The notion that residential segregation has had an effect on the Negro occupational distribution is hardly novel. A number of commentators have noted that historically, the tendency of Negroes to become concentrated geographically in cities gave a great spur to Negro businesses ("There is a direct correlation between this gradual concentration of the Negro population and the growth of the Negro businesses." Eugene Foley, "The Negro Businessman", in Kenneth B. Clark and Talcott Parsons, eds. The Negro American, page 565. See also Gilbert Osofsky, Harlem: The Making of the Ghetto, page 112). In addition, a number of writers have pointed out that Negroes have been most successful in rising into the higher occupational categories in ghettos where they were patronized by members of their own race. Thus, Horace Cayton and St. Clare Drake in their study of Negro life in Chicago wrote of clerical and sales employment: "Wherever Negro members of this small group were found, if they were not in government positions, they were usually working in Negro neighborhoods", Black Metropolis, 1962, vol. 1, page 257. See also Oscar Handlin, The Newcomers, Cambridge, Mass., 1959, page 71. There has even been the suggestion that where Negro segregation decreases, Negro businesses suffer as a result. Thus, Handlin has written that many economic opportunities for Negroes "depend upon the maintenance of group solidarity; and to the extent that these immigrants become adjusted to the New York environment, such means of rising may actually become less effective and still more limited. Paradoxically, the decline in discrimination has already had that effect. In recent years the Negroes have been relatively well treated in mid-town and Bronx stores... As a result a substantial part of expenditures has been diverted away from local shops... Such trends certainly have weakened the position of the retailer or professional who depends upon an ethnic clientele." (Handlin, op.cit., page 72.)

¹⁶One of the implications of this conclusion is that, ceteris paribus, Negroes living in or near the ghetto should be relatively concentrated in the more skilled occupational categories. Although this hypothesis has not yet had a thorough testing, here is one piece of evidence: we ran the following regression for Non-white males across census tracts in Brooklyn:

$$O = a - .42 E - 4.1 Dg \quad R^2 = .39 \quad \text{where } O \text{ is the percent of Non-white} \\ (7.1) \quad (3.9)$$

employed males who are in the four categories Professional and Technical, Managers Officials and Proprietors, Clerical and Craftsmen and Foremen; E is percent of Non-whites having less than a ninth grade education; and Dg is the distance in miles from the tract midpoint to the nearest boundary of the ghetto (Bedford-Stuyvesant). The regression suggests that the percent of Non-white males in Brooklyn who are in the more skilled occupations falls off rather sharply as distance from the ghetto increases.

Nathan Glazer once wrote of Negro slums that they have "become
the homes of the old, the criminal, the mentally unbalanced, the most
depressed and miserable and deprived."¹⁷ Here and elsewhere writers have
argued that the more able and more ambitious Negroes leave the ghetto as
soon as they can, as if all the forces worked to produce that result.
At least one factor, the possibility of acquiring a job in the higher
occupational categories, works in the direction of keeping the more
ambitious in or near the ghetto.

¹⁷Nathan Glazer and Daniel P. Moynigan. Beyond the Melting Pot. Cambridge,
Mass: M.I.T. Press, 1963. P. 64.