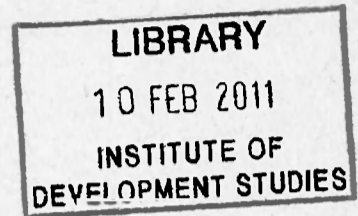

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AN ANALYSIS OF THE VARIATION IN
MODERN SECTOR EARNINGS AMONG THE
DISTRICTS AND MAJOR URBAN CENTRES
IN KENYA.



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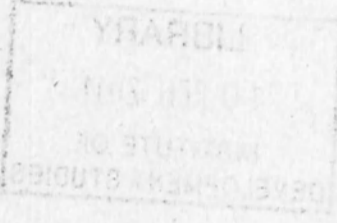
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ABSTRACT

The paper analyses a large body of unpublished data collected by the Annual Enumeration of Employees. Occupational and industrial wage differentials are examined at the national level and then the technique of standardization is employed to explain inter-district and inter-town average modern sector earnings differentials.

These differences are attributed to the occupational and industrial "mixes" of the districts and town and to the "area effect" the extent to which similarly classified occupations and industries pay different wages in districts and town. The latter effect is taken as a measure of the extent to which labour markets are segmented and is found to be particularly important in modern sector district labour markets.

1. INTRODUCTION

Much discussion has been generated by the I.L.O. report Employment, Incomes and Equality on the extent of income inequalities in Kenya (6). The determinants of wages in the various industrial, occupational and regional labour markets will identify, to a certain extent, the major causes of earnings inequality. This paper analyses these various labour markets using a large body of unpublished data centered mainly on 1968, the first year for which such data was generated in Kenya.

The extent of inter-occupational wage differences in competitive markets will be a function of the relative supplies and demands for the different skills of labour. In a developing economy we would expect to find large-scale premiums being paid to skilled labour and in the long-run, as the output of qualified persons from the educational institutions increases, that these occupational wage differences would decline.¹ Inter-industry earnings differences will be a function of the skill requirements of the various industries and the degree of inter-occupational differences. The extent of original income differentials will be in turn, a function of the inter-regional distribution of occupations and industries as well as of the extent to which market forces fail to contract wage differences for similarly skilled workers in different industries.²

"The significance of wage differentials (ie the relationship of wages in any particular structure) is derived from the role that wages play in the economy. A wage represents the price of a specific kind of labour services and shares the function of other prices. Specifically, the wage structure influences the allocation of labor resources

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1. At the turn of this century skilled workers in U.S. manufacturing and construction earned twice as much as the unskilled but, at the present time, the differential has narrowed to less than 40 per cent. In European countries the differentials seem to be even narrower (3,p566).

2. After large regional inequalities open up in the earlier stages of development "convergence becomes the rule, with the backward regions closing the development gap between themselves and the already industrialized areas. The expected result is that a statistic describing regional inequality will trace out on inverted "U" over the national growth path "(10 p.9).

among the various kinds and places of employment. For example, differences in earnings of engineers and school teachers may influence the career choice of students entering a university. Wage differences among regions of a country will influence the direction and magnitude of internal migration as well as the location of certain kinds of productive activity. Differences in wages paid among firms or industries will influence the ease of recruitment and the quality of the recruits. Differences in the relative prices of different classes of labor may influence the choice of production techniques of managements seeking to minimize costs of production " (3 p.557).

Factor mobility would tend to narrow inter-regional wage differentials if wages are responsive to varying degree of unemployed labour. Indeed, "... competition and mobility in labour markets may be sufficient to ensure that earnings for the same work are the same throughout the country, so that all regional differences in earnings of otherwise similar workers are due to differences in their marginal value product arising from differences in skill "(2 p.163)

It may be argued that wages of similarly skilled workers in different industries or regions might reflect differences in industry or regional productivity because of variation in the utilization of non-human factors of production. Yet, "... theoretically there is no a priori reason to expect a flow of productivity gains to wages. They could equally well be passed on to consumers in the form of lower prices or to owners in the form of higher profits. One would expect higher wages to result from increased productivity if, at the same time, labour was in short supply relative to the demand at current wage levels" (3 p.573).

In Kenya the rate of growth of the labour force has exceeded the rate of growth of modern sector job creation, especially in more recent years. The purpose of this paper is to analyse the various wage structures, both for districts and the larger towns, under conditions where the supply of labour available exceeded the observed growth in the demand for labour. Specifically, it is our intent to sort out the relative contribution of inter-district and inter-town differences in the occupational and industrial mixes of the employed labour force and the pure area effect where different wages are paid for the same type of labour.

Given a mobile labour force, and assuming competitive market conditions, we hypothesize: (1) variations in the occupational and industrial mixes of the employed labour will be the dominant determinant of observed differences in inter-regional wage levels; (2) the area effects that do exist will be declining over time because of the growth in the labour force in excess of the growth in modern sector employment; and (3) the reduction in inter-area effects over time will be greater than the reduction in inter-occupational wage differences because the lead time required to acquire appropriate skills exceeds the time needed to make an inter-district move.

2. THE DATA

The content of the analysis is defined by the nature of the data available. The data source is the unpublished results of the Annual Enumeration of Employees. The Enumeration provides employment levels and average monthly earnings for the month of June for each year. At the district level it provides a breakdown of earnings and employment for the private sector only, of thirteen occupational categories and excludes casual workers. Another set of data at the district level present earnings and employment, combining both the private and public sector, for forty six 2-digit I.S.I.C. industries with casual employees included. A third set of data, commencing in 1972, presents information on the occupational and industrial structures, public and private sectors combined for the largest towns of Kenya.*

1968 was chosen for analysis at the district level because it is the first year for which such detailed information is available while the analysis of the urban centres concentrates on 1972, the initial year of detailed town data.

According to our data base the modern sector is defined as: "The entire urban sector, public sector activity outside the urban sector as well as large scale enterprises such as large farms and sawmills in the rural areas" (7 p.i). At the district level the coverage of total employment is rather limited, although the large majority of regular wage employees are covered by the modern sector. Most economic activity in the towns would be included except for the "informal sector",

* A complete list of occupations and industries included is given in the Appendix.

consisting of small scale (less than five employees) labour intensive industries and services.

3. THE OCCUPATIONAL AND INDUSTRIAL WAGE STRUCTURES.

At the national level both the occupational and industrial wage structures exhibit a high degree of earnings inequality. Elsewhere (5) the authors showed that a large part of inter-industry average earnings differences is explained by the occupational make up of the industries. The national occupation wage structure is presented in Table 1 while the industrial wage structure is included in the Appendix.

Table 1

A Average Monthly Income by Occupations for Private and Public Sectors
1968 (Shillings)

<u>Occupation</u>	<u>Private Sector</u>		<u>P Public Sector</u>	
	<u>Absolute</u>	<u>Relative</u>	<u>Absolute</u>	<u>Relative</u>
Directors and Top Administrators	2040	560	3020	620
Professional	1900	522	2109	433
Executive and Managerial	2462	676	2167	445
Technicians & Works Managers	1306	359	1204	247
Teachers	337	93	553	115
Secretaries & Typists	1074	295	977	201
Clerks	705	194	512	105
Book-keepers & Cashiers	934	257	1145	235
Operators of Office Machines	786	216	560	115
Technical Sales Reps.	1240	341	813	167
Shop Assistants	381	105	406	83
Other Skilled & Semi-Skilled	359	101	288	59
Unskilled Labourers	142	39	253	52
Total	364	100	487	100

Source: Unpublished data from Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

In general the relative differences amongst occupational wages in the public sector are smaller than those in the private sector, although they are still very large in absolute terms. In particular, for the category "unskilled labourers", where the majority of workers are found, in both absolute and relative terms, the public sector pays much more than the private sector.

As seen from the Appendix the inter-industry differences in average earnings are very large and would be a function of the inter-occupation differences as well as the occupational make-up of the industries. The greatest differences in earnings occur between the industries in the agricultural sector and some of these in manufacturing and commerce.

4. THE VARIATION IN INTER-DISTRICT WAGE LEVELS

Table 2 presents the level of monthly wages relative to the Kenya average for 1968. One set of data refers to private sector activities only and is taken from the occupational breakdown of activities. The second set combines public and private activities, includes casual workers, and is taken from the industrial breakdown of activities.³

The table demonstrates the wide variation in earnings among the districts of Kenya. Nairobi and Mombasa are the dominant industrial centres in the country and are the leaders in both the level of earnings and the size of modern sector employment. Districts of little consequence, in terms of numbers employed in modern sector economic activity, such as Tana River, Siaya, Baringo and Elgovo Marakwet, have very low average earnings. The coefficients of variation are very high and are indicative of the high degree of regional inequality in Kenya.⁴

3. The seven northern districts, Garisa, Wajir, Mandera, Isiolo, Marsabit, Samburu and Turkana have been excluded because there is virtually no modern sector activity in this area, other than government services.

4. Comparison of these results with the regional income differentials in twenty four countries in various stages of development as reported by Williamson (10), indicates that only Brazil had a coefficient of variation comparable in size to that of Kenya.

TABLE 2.

Relative Monthly Earnings per Worker and Per Cent of Kenya Modern Sector Employment in each District for 1968.

District	Private Sector based on Occupations **		Public and Private Sectors based on Industries***	
	Relative Wage	Per cent of Total Employment	Relative Wage	Per cent of Total Employment
Nairobi	177	31	178	31
Kiambu	64	9	66	8
Kirinya	64	*	38	1
Muranga	44	2	72	2
Nyandarua	40	1	50	1
Nyeri	68	2	90	3
Kilifi	53	1	70	1
Kwale	40	2	69	1
Lamu	56	*	99	*
Mombasa	163	8	158	9
Taita	36	1	57	2
Tana River	23	*	90	*
Embu	74	*	102	1
Kitui	64	*	84	1
Machakos	54	2	74	2
Meru	46	1	69	2
Kisii	65	1	78	1
Kisumu	89	3	96	4
Siaya	22	*	104	*
S. Nyanza	77	1	82	1
Kajiado	159	*	105	*
Kericho	42	10	51	6
Laikipia	51	2	52	2
Nakuru	58	10	75	9
Narok	45	*	34	*
T. Nzoia	40	4	49	3
U. Gishu	54	5	67	4
Baringo	31	*	63	*
E. Marakwet	28	*	71	*
Nandi	37	3	43	2
W. Pokot	12	*	50	*
Bungoma	50	*	79	1
Busia	55	*	95	*
Kakamega	49	1	95	2
Kenya Total	100	100	100	100

Coefficient of Variation:⁵

- Weighted	59.8%	53.4%
- Unweighted	55.5%	33.6%

* District employment is less than 0.5 per cent of total employment.

** Casual Workers excluded

*** Casual Workers included

SOURCE: Unpublished data from Republic of Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

5. The unweighted coefficient of variation is calculated as $\frac{1}{n-1} \sum_i (y_i - \bar{Y})^2$ where y_i is the average earnings in district i , \bar{Y} is

The greatest inequalities in relative earnings are found in private sector employment when casual workers are excluded. When the public sector is included together with casual workers there is a dramatic rise in relative earnings of the low wage districts and a sharp fall in the unweighted coefficient of variation. However, after taking account of the relative numbers employed in the districts, the overall degree of regional inequality in average earnings remains very large.

5. THE DETERMINANTS OF THE VARIATION INTER-DISTRICT WAGE LEVELS

The next step was to establish the extent to which district average earnings reflect differences in the earnings of persons of a given age, sex, skill and education level, working in a stated occupation and in a particular industry and the extent to which district earnings reflect differences in the population mix with respect to the characteristics specified. But, as stated by Denison, if nearly all of the inter-district differences in average earnings can be explained in terms of differences in the composition of the labour force with respect to the observable characteristics, the reason for the small remaining differences would not be crucial. (2p.164)

However, the only readily accessible information on the composition of the Kenyan districts' employees was the breakdown by occupational categories and a separate breakdown by industries. An attempt was made to attribute the difference between average earnings for each district and the national average earnings per worker to the occupational and industrial make-up of the district and to the extent to which similarly classified occupations and industries receive varying amounts of remuneration in the different districts.⁶

As we have seen, economic theory suggests that in static equilibrium, if workers within each occupational classification in each industry were truly similar in every respect and with perfect competition in the various labour markets, the "area effects" should be negligible. Therefore, the extent to which competitive forces are working in labour markets in Kenya can be gauged, tentatively, assuming a reasonable degree of homogeneity within occupational and industrial classifications,

5. \bar{Y}_i is the Kenya average earnings and n is the number of district carries equal weight so that the index measures the degree of inequality in earnings between the average man in each district, assuming he receives his district's average earnings, and the Kenya average. The weight coefficient of variation is calculated as

$$\frac{1}{n} \sum_i \left(\frac{Y_i - \bar{Y}}{\bar{Y}} \right)^2 \frac{e_i}{e}$$
 where e_i is total modern sector employment in district i and e is total modern sector employment in Kenya. Here the index measures the degree of inequality amongst individual earnings and the national average, again assuming all persons in a particular district receives its average earning.

6. These separate effects have been labelled the "mix effect" and the "area effect" respectively (1)

classifications, by the relative importance of the "area effect".⁷

In the attempt to establish the relative importance of the "mix effect" and the "area effect" for the 34 Kenya districts the technique of standardization was used.³ The amount by which each district's average earnings would differ from the national average, if each had the same average earnings in each occupation or in each industry and if district weights are used for Kenya's occupational earnings and industry earnings, can be calculated as the difference between D, actual district earnings per worker and O, the occupation - constant district earnings per worker or as the difference between D and I, the industry constant district earnings per worker.

If national occupational or industrial employments weights are used the calculation becomes the difference between R, the rate-constant district earnings per worker, and K, the actual Kenya average earnings per worker.

Following Denison, however, there is no reason to prefer one set of weight over the other, so an average of the two differences was used. The result provides the amount by which a district's earnings per worker would differ from Kenya average if only their occupational or industrial composition varied: that is, the "mix effect".

Similarly, the "area effect" can be measured in two ways. If each district has the same occupational or industrial composition so the geographic variation is limited to differences in earnings per worker within an occupation or industry the measure would be $D - R$, if district weights are used, or $O - K$ or $I - K$ if Kenya weights are used. Again, an average of the two approximates the amount by which each district's average earnings would differ from the Kenya average if their occupational

7. Clearly, given this assumption, differences among occupational classifications are meant to describe differences in skills of workers which would be a function of age, education and other personal attributes of employees. We do not have any alternative means of measuring such differences in skills among employees.

8. This technique was used originally by Denison (2). Subsequently, it was adopted by House in analysing earnings differences among the eight provinces of Kenya. (4). For a list of the many shortcomings of the standardization technique see Perlman (9.p.128).

or industrial compositions were the same; that is, the "area effect".⁹

Analysis of the Information on Occupations

The results of the standardization exercises for 1968 are reported in Table 3. Of the Shs. 6,438 total differences between the average for each district and the Kenya average earnings, with signs disregarded, it was estimated 31 per cent was attributable to the "mix effect" and 69 per cent to the "area effect". Almost identical allocations were made to these separate effects using the 1971 data.

In most cases the two separate effects re-enforce each other and work in the same direction. However, the districts of Taita, Embu, Kisii, Kisumu and South Nyanza exhibit favourable "mix effects" which do not explain their below average earnings. For example, the favourable occupational structure in Taita, computed as Shs.9, does not explain this district's below average earnings of Shs. 233. Therefore, the Shs.9 has to be added to the amount to be explained by occupational earnings differences. In cumulating for all districts the amount of the deviation from the Kenya national average explained by occupational composition the Shs.9 of Taita was deducted. Similar adjustments were made in the other districts where the two factors work in opposite directions.

When account is taken of the wide variation in the number of employees in each district by weighting the difference between districts average earnings and the Kenya average by the number employed in each district, then the average difference between the "representative" employee and the national average earnings, again with signs disregarded, would be Shs. 209. Of this amount 53 per cent was attributable to the "mix effect" and 47 per cent to the "area effect". For 1971 each factor's

9. The Rate Constant average district wage (Rd) is calculated as

$$R_d = \frac{\sum_i e_i w_{ik}}{\sum_i e_i}$$

where e_i = district employment in occupation or industry i and w_{ik} = average wage in occupation or industry i for Kenya.

The Occupation or Industry Constant average district wage (Od or Id) is calculated as

$$O_d \text{ or } I_d = \frac{\sum_i e_{ik} / w_i}{\sum_i e_{ik}}$$

where e_{ik} = employment in industry i in Kenya w_i = average district wage in industry i

TABLE 3

Analysis of Sources of Variation in Average Monthly Earnings by District in 1968 (Shillings) from Information on Occupations for Private Sector only.

District	Average Earnings				Measures of Determinants of Variation in Earnings		
	K	D	R	O	Total	"Mix Effect"	"Area Effect"
Nairobi	364	644	523	480	+281	+162	+119
Kiambu	364	233	286	295	-131	-70	-61
Kirinyaga	364	324	285	312	-130	-79	-51
Muranga	364	161	233	239	-203	-102	-101
Nyandarua	364	147	227	217	-217	-104	-113
Nyeri	364	247	328	268	-117	-29	-88
Kilifi	364	194	279	271	-170	-81	-89
Kwale	364	145	208	239	-219	-125	-94
Lamu	364	204	379	670	-160	-226	+66
Mombasa	364	593	508	430	+229	+129	+100
Taita	364	131	406	155	-233	+9	-242
Tana River	364	83	337	83	-231	-14	-267
Embu	364	268	472	259	-96	+68	-164
Kitui	364	234	317	273	-130	-43	-87
Machakos	364	198	243	317	-166	-120	-46
Meru	364	166	348	191	-198	-20	-178
Kisii	364	235	406	229	-129	+24	-153
Kisumu	364	323	389	309	-41	+19	-60
Siaya	364	80	396	168	-284	-28	-256
S. Nyanza	364	279	392	277	-85	+15	-100
Kajiado	364	580	288	1,031	+216	-263	+479
Kericho	364	153	209	291	-211	-147	-64
Laikipia	364	186	237	291	-178	-116	-62
Nakuru	364	212	232	283	-152	-77	-75
Narok	364	164	269	202	-200	-67	-133
T. Nzoia	364	146	241	227	-218	-102	-116
U. Gishu	364	198	273	264	-166	-79	-87
Baringo	364	114	236	162	-250	-88	-162
E. Marakwet	364	102	224	95	-262	-67	-195
Nandi	364	134	206	228	-230	-126	-104
W. Pokot	364	43	169	66	-321	-109	-212
Bungoma	364	181	349	204	-183	-19	-164
Busia	364	200	325	236	-164	-38	-126
Kakamega	364	177	284	224	-187	-64	-123
Total Deviations					6,438	2,033	4,405

SOURCE: Unpublished data from Republic of Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

contribution was approximately equal.¹⁰

In addition, in 1963 the amount of the differences in earnings between the district average and the Kenya average which can be attributed to the "area effect" exceeds that which can be attributed to the "Mix effect" in 16 of the 34 districts. In the seven districts where the two factors work in opposite directions, for six of them the actual deviation from the national average is in the direction indicated by the "area effect".

Given the thirteen occupational classifications used by the Central Bureau of Statistics and simply comparing the average earnings for each district with the national average, the "area effect" is clearly the major factor in the variation in average earnings among districts. Even when account is taken of the relative importance of Nairobi and Mombasa in total employment and the significance of the "mix effect" in these districts, the contribution of the "area effect" to the earnings differentials is still 50 per cent.

Assuming a reasonable degree of similarity in skills between persons classified in an occupational category in the various districts, clearly these occupational labour markets are far from perfect, given the relative importance of the "area effect". More appropriate data to analyse the functioning of labour markets would involve knowing the distribution of earnings around the average for each occupational description for each district. The lack of such information here has necessitated the implicit assumption that all workers in a district similarly classified receive the average for that job description.

Given that large intra-occupational earnings differences are at variance with the operation of competitive markets, especially in Kenya where the rate of growth of the labour force exceeds the rate of growth of modern sector employment, the next exercise involved a search for the occupational categories which contribute most to the "area effect". Table 4 reports both the unweighted and the weighted coefficients of variation for the thirteen occupational categories for

10. The major contribution of the "mix effect" to the earnings differences comes from Nairobi and Mombasa where the majority of the professionals and executives are located.

TABLE 4

Coefficients of Variations of Average Earnings across Districts for Thirteen Occupational Categories, 1968

Occupation	Coefficients of Variation		Per Cent of Total National Employment in each Occupation
	Unweighted (per cent)	Weighted (per cent)	
1. Directors and top level administrators..	56.9	26.7	2.0
2. Professionals..	56.5	37.0	0.9
3. Executives and managers..	34.7	20.6	1.3
4. Technicians, foremen and supervisors...	42.3	33.3	2.7
5. Teachers..	54.2	44.4	2.5
6. Secretaries, stenographers and typists..	45.1	11.9	1.1
7. Clerks ..	38.1	21.5	3.5
8. Book-keepers and cashiers..	33.2	16.0	1.0
9. Operators of office machines ..	37.2	22.2	0.3
10. Technical sales representatives and brokers ..	46.9	23.5	0.6
11. Shop assistants ..	40.7	16.3	0.3
12. Miscellaneous skilled and semi-skilled ..	39.6	29.1	17.7
13. Unskilled labourers ..	35.1	41.1	65.0
Total.....	55.5	59.8	100.0

SOURCE: Unpublished data from Republic of Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

1968. The weight used for each district was the proportion of an occupation's total employment attributable to the district.

The unweighted coefficients of variation demonstrate clearly that inter-district variations in earnings for each occupational category are significant, ranging from 57 per cent for directors to 33 per cent for book-keepers. However, the assumption that employees assigned to these first five categories are relatively homogeneous, both within occupations and across districts, is hardly credible. On the whole, it is these categories that have the largest unweighted coefficients of variation. One suspects that with a much finer classification of these occupations a larger part of the inter-district variation in earnings attributed to the "area effect" could be attributed to differences in the occupational mix.

However, as reported in Table 4 these occupations contribute only 10 per cent of Kenya's total modern, private sector employment. Therefore, their contribution to the weighted coefficients of variation for district average earnings reported in Table 2 would be negligible.

The weighted coefficients of variation for occupational earnings show a marked reduction from the unweighted coefficients for all categories except that of unskilled labourers. This is caused partly by the dominance of Nairobi and Mombasa which claim over 60 per cent of all employment in all occupations except teachers, miscellaneous skilled and semi-skilled and unskilled labourers.

The occupations classified as miscellaneous skilled and semi-skilled and unskilled labourers are responsible for the largest representation in total employment, 10 and 65 per cent respectively. The latter group in particular, given its relative size, likely is responsible for much of the "area effect" reported in Table 3. Indeed, this expectation is fulfilled by the size of the weighted coefficient of variation which was the second highest of the thirteen occupational groups.

Yet it is to be expected that persons classified as "unskilled labourers" would form a far more homogeneous group than any of the other occupational categories. If competitive forces are working and if the whole of Kenya is viewed as one market for unskilled labour, then small earnings differentials amongst persons within this classification

could be expected. Also, unskilled labour has the widest representation of all the occupations among the district with only 27 per cent of the total located in Nairobi and Mombasa. However, the relatively high weighted coefficient of variation of average earnings is a function of the very large average earnings per unskilled employee in Nairobi (160) and Mombasa (192), compared with the national average (100).

We are left then to speculate why, in an economy where the rate of growth of the labour force exceeds the rate of growth of modern sector employment and where the largest proportion of the migrants and the overwhelming majority of the unemployed and underemployed presumably are unskilled, there would be such a wide dispersion of earnings for unskilled employees. In an earlier paper the authors found, in attempting to explain inter-industry earnings differences for three-digit manufacturing industries, a large unweighted coefficient of variation for unskilled earnings far unskilled earnings(5). Significant explanatory variables for the inter-industry structure of unskilled earnings were an index of industry concentration, average industry productivity and the proportion of total industry employment in Nairobi. The initial two variables attempt to measure what might be called an industry's "ability-to-pay" while the latter could be explained partly by the higher cost of living in Nairobi.¹¹ Although it was not possible to measure their influence it is conceivable that trade union pressure on private employers would make a greater impact in Nairobi and Mombasa where these organizations are strongest. However, all these forces remain inconsistent with the free workings of a competitive labour market.

11. The cost-of-living difference is reflected partly in higher legal minimum wages for Nairobi and Mombasa. At the present time they are approximately 16 per cent higher than for the remainder of the country.

ANALYSIS OF THE INFORMATION ON INDUSTRIES

The results of the standardization exercises for 1968 are reported in Table 5.

TABLE 5

ANALYSIS OF SOURCES OF VARIATION IN AVERAGE MONTHLY EARNINGS BY DISTRICT IN 1968 (SHILLINGS) FROM INFORMATION ON TWO-DIGIT INDUSTRIES FOR PUBLIC AND PRIVATE SECTOR ACTIVITIES

District	Average Earnings			Measures of Determinants of Variation in Earnings		
	K	D	R	Total	"Mix Effect"	"Area Effect"
Nairobi	394	702	562	+308	+168	+140
Kiambu	394	262	295	-132	- 99	- 33
Kirinyaga	394	348	416	- 46	+ 22	- 68
Murang'a	394	282	338	-112	- 56	- 56
Nyandarua	394	227	262	-167	-132	- 35
Nyeri	394	355	409	- 39	+ 15	- 54
Kilifi	394	275	337	-119	- 57	- 62
Kwale	394	270	270	-124	-124	0
Lamu	394	390	483	- 4	+ 89	- 93
Mombasa	394	621	619	+227	+225	+ 2
Taita	394	224	329	-170	- 65	-105
Tana River	394	354	477	- 40	+ 83	-123
Embu	394	401	475	+ 7	+ 81	- 74
Kitui	394	330	467	- 64	+ 73	-137
Machakos	394	293	362	-101	- 32	- 69
Meru	394	271	378	-123	- 16	-107
Kisii	394	309	442	- 85	+ 48	-133
Kisumu	394	378	501	- 16	+107	-123
Siaya	394	408	499	+ 14	+105	- 91
S. Nyanza	394	323	485	+ 71	+ 91	-162
Kajiado	394	414	532	+ 20	+138	-118
Kericho	394	202	204	-192	-190	- 2
Laikipia	394	204	271	-190	-123	- 67
Nakuru	394	296	320	- 98	- 74	- 24
Narok	394	329	468	- 65	+ 74	-139
T. Nzoia	394	193	237	-201	-157	- 44
U. Gichu	394	265	320	-129	- 74	- 55
Baringo	394	266	378	-128	- 16	-112
E. Marakwet	394	278	414	-116	+ 20	-136
Nandi	394	170	184	-224	-210	- 14
W. Pokot	394	196	326	-198	- 68	-130
Bungoma	394	312	466	- 82	+ 72	-154
Busia	394	373	465	- 21	+ 71	- 92
Kakamega	394	375	428	- 19	+ 34	- 53
Total Deviations				3652	1411	2241

Source: Unpublished data from Republic of Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

In a number of districts many of the forty-seven industries were not represented so that it would have led to very misleading results to have attempted to calculate the industry-constant average district wage. Therefore the "mix effect" was calculated as simply the rate constant minus the Kenya average earnings (R-K) while the "area effect" was calculated as the district actual minus the district rate - constant average earnings (D-R).

The earnings differences between the district and the Kenya national average are much smaller here compared with those derived from the private sector only. The public sector's nationally determined pay scales appear to act as a force making for greater equality amongst average district wages. In addition, average earnings are much larger when the public sector is included since, in many districts, public servants and administrators are the only representatives of high-level manpower.

Of the Shs. 3652 total differences between the average for each district and the Kenya average earnings, with signs disregarded, 39 per cent was attributed to the "mix effect" and 61 per cent to the "area effect". In six of eighteen districts where the two effects operate in the same direction the "area effect" dominates while in the remaining eighteen districts where the two factors work in opposite directions in thirteen the "area effect" dominates.

How comparable the two-digit industries are across districts remains open to question. Even with a finer disaggregation of industrial activities it is very likely that many of the products from industries in Nairobi and Mombasa are very different from similarly classified activities in other areas of Kenya. In spite of this observation we can assert once again that a major contribution to inter-district average earnings differentials is made by similarly classified industries paying different average earnings in the district of Kenya.¹²

12. The occupational make-up of a particular industry's labour force will vary across districts which might partly explain this fact. With the available data it proved impossible to standardize for the occupational composition of industries across districts.

6. THE DETERMINANTS OF THE VARIATION IN WAGE LEVELS AMONGST THE MAJOR URBAN CENTRES

Given that the majority of modern sector activities are most likely to be concentrated in urban areas one factor which would partly explain inter-district average earnings differences would be the inter-district distribution of urban centres. Other factors would be the extent of differences in the industrial and occupational compositions of the towns, as expressed by the "mix effect", as well as the extent to which these labour markets are segregated from one another, as measured by the relative size of the "area effect".

Following the example of Bell, "... wage data from the metropolitan area will be employed since the area represents a classic labor market in which spatial mobility of labor is high. In addition, the spatial immobility of labor among the markets creates a distinct regional dimension" [1 p. 368]. Perhaps only Nairobi and Mombasa could be called metropolitan areas but the spatial separation of the other towns would justify their being classed as distinct labour markets. The degree of segregation of the eleven labour markets can be determined by evidence of different wages being paid within an occupational category, by a particular industry, among the various urban centers.

Table 6 presents the average earnings per worker relative to Nairobi for the ten largest urban centres. Nairobi is used as the reference standard because it is the capital city and exceeds by far the size of the other ten. The earnings relatives are based on total three-digit I.S.I.C. industry earnings which include the earnings of casual workers. The one exception is 1972 which includes as well a column of earnings relatives based on twelve occupational classifications. The latter column excludes casual workers so actual average town earnings exceed those of the other columns where casual employees are included.

The detailed information for towns beginning in 1972 uses twelve occupational classifications, which are slightly different than for the districts and earlier years, and also gives a 3 - digit industrial breakdown of economic activities.

TABLE 6

Average Urban Earnings per Worker Relative to Nairobi: 1964-72

<u>Urban Centre</u>	<u>1964</u>	<u>1966</u>	<u>1968</u>	<u>1970</u>	<u>1972</u>	<u>1972[*]</u>
Kisumu	65	61	60	60	73	69
Nakuru	70	69	65	64	77	81
Kericho	50	50	48	48	62	57
Eldoret	49	48	51	52	65	66
Kitale	50	50	47	46	61	60
Nanyuki	47	46	43	40	44	45
Nyeri	55	54	53	52	64	65
Thika	53	52	48	48	51	57
Mombasa	76	75	72	72	75	84
Malindi	49	49	53	51	56	54
Nairobi	100	100	100	100	100	100
Coefficient of Variation (%).	44.7	45.6	46.8	47.6	38.5	38.0

* These average earnings relatives are based on the twelve occupational classifications listed in the Appendix.

SOURCE: Kenya, Statistics Division, Ministry of Finance and Planning, Employment and Earnings in the Modern Sector, Reports for 1964-1971. The 1972 data were in an unpublished form from the same source.

The average wage level in each town (T) is below that of Nairobi (N) throughout the nine year period. In general, the extent of inter-urban wage disparity is less than that for the districts and has been declining over time, with the exception of three towns in which the disparity has increased slightly. After 1970 there was a substantial fall in the coefficient of variation as all ten towns increased their earnings position relative to Nairobi.

The next step was to analyze the occupational and industrial wage structures for the towns for 1972.¹³ Table 7 and 8 present the results.

TABLE 7

Analysis of sources of Variation in Average Monthly Earnings by Urban Centres in 1972 (Shillings) from Information on Occupations for Public and Private Sector Activities.

Urban Centre	N	Average Earnings				Measures of Determinants of Variation in Earnings		
		T	R	O	Total	"Mix Effect"	"Area Effect"	
Kisumu	784	541	678	604	-243	- 85	-159	
Nakuru	784	635	695	706	-149	- 80	- 69	
Kericho	784	444	518	637	-340	-229	-111	
Eldoret	784	515	621	636	-269	-142	-127	
Kitale	784	470	606	626	-314	-167	-147	
Nanyuki	784	355	527	588	-429	-245	-184	
Nyeri	784	507	655	618	-277	-120	-157	
Thika	784	448	557	637	-336	-208	-128	
Mombasa	784	658	615	806	-126	-158	+ 32	
Malindi	784	424	551	636	-360	-222	-138	
Total Deviations					2843	1656	1187	

SOURCE: Unpublished data from Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

13. Again this unpublished information gave a detailed breakdown of the industrial composition of each town and its occupational composition, but not of the occupational make-up of each industry in each town, so the two series were used as separate entities.

TABLE 8

ANALYSIS OF SOURCES OF VARIATION IN AVERAGE MONTHLY EARNINGS BY URBAN CENTRES IN 1972 (SHILLINGS) FROM INFORMATION ON INDUSTRIES FOR PUBLIC AND PRIVATE SECTOR ACTIVITIES

Urban Centre	Average Earnings			Measures of Determinants of Variation in Earnings		
	N	I	R	Total	"Mix Effect"	"Area Effect"
Kisumu	825	602	748	-223	- 77	-146
Nakuru	825	635	852	-190	+ 27	-217
Kericho	825	512	717	-313	-108	-205
Eldoret	825	537	708	-288	-117	-171
Kitale	825	503	582	-322	-243	- 79
Nanyuki	825	363	595	-462	-230	-232
Nyeri	825	532	728	-293	- 97	-196
Thika	825	420	708	-405	-117	-288
Mombasa	825	620	732	-205	- 93	-112
Malindi	825	463	643	-362	-182	-180
Total Deviations				3063	1237	1826

Source: Unpublished data from Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

Table 7 shows the occupation "mix effect" to be relatively more important than the "area effect" in all cases except Kisumu and Nyeri. Of the total deviations between the towns and Nairobi 58 per cent is attributable to the "mix effect" and 42 per cent to the "area effect".

Table 8 shows the "area effect" to be relatively more important than the industry "mix effect" in all cases except Kitale and Malindi. 50 per cent of the total deviations is attributable to the former and 40 per cent to the latter.

The exercises reported in Table 7 and 8 suggest that Nairobi's relatively higher earnings per worker are largely explained by a favourable occupational mix and by similarly classified industries paying more in Nairobi than elsewhere. However, a three-digit classification of an "industry" can encompass a wide spectrum of industrial activities.

Possibly the more capital-intensive are located in Nairobi, requiring a higher level of skilled labour. If so, the products and techniques of production are quite likely to be different in any one industry in Nairobi, compared with the other urban centres. This would help explain the results obtained from occupational data that the skill make-up of the labour force is higher in Nairobi and makes a relatively large contribution to its high average earnings because the industrial structure is truly different.

Here, the "mix effect" was calculated as R-N and the "area effect" as T-R since the data again did not allow the calculation of the "industry-composition-constant" average town wage.

As we might have predicted the degree of labour market segmentation is much less between urban centres than between districts. For the unskilled, which one expects is a reasonably homogeneous group, the degree of inter-urban income inequality is well below that for all workers across-town and for the unskilled across districts. The largest variation is Malindi, where wages of the unskilled was 69 per cent of the Nairobi level in 1972. Two urban centres, Mombasa and Nakuru, reported average wage levels for the unskilled above the Nairobi level (116 and 106 per cent respectively). The unweighted coefficient of variation for the ten towns, relative to Nairobi, was 17 per cent in 1968 and 21 per cent in 1972. This indicates the inter-urban earnings differences are lowest in those parts of the labour market where the excess labour supply seeking employment is likely most pronounced and where the labourers involved are relatively more homogeneous.

CONCLUSIONS

This paper has attempted to explain differences in earnings per worker among the districts and towns of Kenya and to bring some evidence to bear on the competitive functioning of labour markets in Kenya.

A major contributor to inter-district average earnings differentials is the significance of similarly classified occupations and industries receiving different remunerations among the districts.

This is especially important for workers classified as unskilled. Given a reasonable degree of homogeneity within each occupational classification, especially the unskilled group, and the competitive forces working in an economy within a growing surplus of visibly unemployed, one might expect the intra-occupational, inter-district earnings differentials to be relatively small. This proved not to be the case.¹⁴

However, the analysis of inter-urban earnings differences showed that the occupational "mix effect" was relatively much more important, mainly as a result of the lower variation of earnings of unskilled workers between towns.

It seems quite apparent that the occupational and industrial structures are interdependent. We suspect that industry structure differences are much greater than our three-digit classification can discern and that the large industrial base of Nairobi has attracted industries, some largely dominated by multi-national corporations, which are of a capital intensive nature. They would then require a labour force which has a larger proportion of higher skilled workers, which is indeed our finding for Nairobi as compared with the other urban centres.

There appears to be more inter-action between towns in the determination of wages, especially for the unskilled workers, than between districts. Given the requirements of urban living perhaps these workers are truly much more homogeneous between towns than between districts, which would help explain our results.

Because of the lack of adequate time-series data it proved impossible to examine our hypotheses regarding the expected relative decline in the "area effects" over time.

14. Considerable human capital is created through on-the-job training which may result in varying levels of skill among those employees classified as unskilled. Again, this raises the issue of how reasonable it is to assume that the occupational categories, unskilled labourers in particular, are relatively homogeneous in their make-up.

One writer has suggested that "the importance of mobility barriers are reflected in the magnitude of the inter-regional difference in wages for the same type of labour, after correcting for other sources of wage differences" [9, p. 124]. Certainly the Kenya population has been highly responsive to changing earnings and employment opportunities yet the "area effect" has remained very significant especially at the district level. This suggests that the simple competitive model of wage determination needs to be amended to take account of other factors, both economic and institutional. However, the Kenya experience is not unique as borne out by the evidence from Latin America where "... in spite of high rates of labour mobility (especially rural-urban) among regions and sectors in many countries, there is only scattered information to suggest that some differentials are narrowing" [3, p. 578].

APPENDIX

(i) The detailed descriptions of occupations used in 1968 were:

- A. Directors and top level administrators (Includes unpaid directors)
- B. Professional
- C. Executive and Managerial
- D. Technicians, Works Managers, Workshop Foremen and other Supervisory Personnel.
- E. Teachers
- F. Secretaries, Stenographers and Typists.
- G. Clerks
- H. Book-keepers, Cashiers, and Book-keeping Clerks
- I. Operators of Office Machines
- J. Technical Sales Representatives and Brokers
- K. Shop Assistants
- L. Skilled and Semi-skilled not included above.
- M. Unskilled Labourers

For 1972 the descriptions were:

- M. Top Level Administrators and General Managers
- L. Salaried Directors
- K. Professionals
- J. Technicians, Works Managers, Workshop Foremen and Semi-Professionals
- I. Other Middle Level Executive and Managerial Personnel
- H. Teachers
- G. Secretaries, Stenographers and Typists
- F. General Clerks, Book-keepers, Cashiers and Book-keeping Clerks.
- E. Shop Assistants, Technical Sales Representatives and Brokers, Auctioneers, Salesmen.
- D. Skilled Workers
- C. Semi-skilled Workers
- B. Unskilled Labourers

(ii) The Two-Digit Industries used together with their national average earnings per month in Shillings and relatives for 1968 were:

<u>I.S.I.C.</u>	<u>SHS.</u>	<u>RELATIVE</u>
01 Agriculture	119	30
02 Forestry & Logging	130	33
03 Hunting and Trapping	138	35
04 Fishing	457	119
12 Metal Mining	740	188
13 Crude Petroleum	740	188
14 Stone Quarrying	246	62
19 Non-Metallic Mining	371	221
20 Food Manufacturing	559	142
21 Beverage Industries	1021	259
22 Tobacco Manufactures	352	216
23 Textiles	318	91
24 Footwear & Clothing	450	114
25 Wood & Cork	215	55
26 Furniture & Fixtures	475	121
27 Paper & Paper Products	586	149
28 Printing & Publishing	934	237
29 Leather & Fur Products	475	121
30 Rubber Manufactures	699	177
31 Chemicals	806	205
32 Products of Petroleum	1753	445
33 Non-Metallic Mineral Products	669	170
34 Basic Metal Industries	557	141
35 Metal Products	557	141
36 Non-Electrical Machinery	637	162
37 Electrical Machinery	899	226
38 Transport Equipment	713	181
39 Miscellaneous Manufacturing	647	164
40 Special Trade Contractors	721	183
41 General Trade Contractors	437	111
51 Electric Light & Power	820	208
52 Water Supply	676	172
60 Joint Wholesale & Retail	1010	256
61 Wholesale Trade	973	247

62 Banks & Financial Institutions	1237	314
63 Insurance	1263	321
64 Real Estate	704	179
66 Retail Trade	496	126
71 Transport	704	179
72 Storage & Warehousing	829	210
73 Communication	326	210
81 Government Services	519	132
82 Education & Welfare Services	444	113
83 Other Social & Related Services	1106	281
84 Recreational Services	471	120
85 Personal Services	218	55
Kenya Average	394	100

Source: Unpublished data from Kenya, Statistics Division, Ministry of Finance and Planning, Annual Enumeration of Employees.

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