SOCIAL SCIENCES
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THE DETERMINATION OF
RACIAL INCOME DIFFERENTIALS
IN SOUTH AFRICA

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An Essay on Statistical Evidence, Theoretical Analysis
and Policy Implications

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(Paper read at the Social Sciences Research Conference, University of Natal, Durban.   July, 1962)

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Some Facts

While the distribution of the population of South Africa on a demographic basis is a regular feature of population censuses and inter-census estimates, information about the distribution of the South African income flow among the main population groups is much more difficult to obtain. A full-bodied statistical study of the growth of the national or geographic income flow differentiated by race is therefore impossible at present. Only a rough impression of the general situation may be gained from the available studies, three of which are briefly mentioned below.

Some years ago Mr. S.F. Thirion attempted a calculation of the "national" income of each race in 1946/47 and compared his results with the previous estimates for 1936 by the Department of Economics of the Natal University and for 1939/40 by S. Herbert Frankel and H. Herzfeld.   Thirion's results are as follows: [1]

TABLE I.

Income per economically active person, 1936 and 1946/47

	1936		1946/47	
	Total (R1,000)	per econ.active person	Total (R1,000)	per econ.active person
Whites	488,000	668	1,137,674	1,179.0
Asiatics	12,144	190	27,020	341.2
Coloureds [1]	28,950	104	60,012	172.0
Natives	122,078	40	305,868	101.8
All races	651,172	158	1,530,574	321.2

1. "Die Indeling van die Volksinkome van die Unie volgens Rassegroepe vir die jaar 1946/47 - 'n Metodiese Studie", unpublished M. Com thesis, Pretoria University.

These figures must be used cautiously and merely to
indicate general orders of magnitude. The methods of
calculating the income and estimating the economically
active population are neither statistically nor analytically
perfect. Nevertheless, Table I states in concrete fashion
what every South African economist knows, namely that
racial income differentials are very large - probably much
larger than intra-racial differentials (if the small number
of extreme cases are disregarded). It also tends to indicate
that all the groups advanced in roughly the same proportion
between 1936 and 1946/47, except the Natives who managed
to forge ahead rather more rapidly.   Before actually
accepting such a conclusion literally one should, of course,
deflate these money incomes by appropriate consumer price
indices designed for each race separately, but such statis-
tical data do not exist at present.

No similar estimates for subsequent periods have to
my knowledge been undertaken in respect of the racially
differentiated national income, but some work in this regard
is being undertaken at the Pretoria University in collaboration
with the Bureau of Census and Statistics.   From this source
it would appear that the total cash salaries and wages paid to
Bantu employees in South Africa (the geographic income)
increased from the R265 million figure for 1946=47 to more
than R500 million in 1959, which indicates that the postwar
rise in wage per economically active Bantu did not repeat
the high rate achieved during the prewar period.   The
possibility of great strides in agricultural production by
Bantu for their own account especially in the reserves is,
I think, unimportant.

The above trend in incomes is largely borne out by
figures drawn from industrial censuses by Thirion and van
den Bogaerde respectively in recent studies.   Thirion's
figures relate to only White and Bantu employees and are
here quoted from an article by Professor W. F. J. Steenkamp. [2]

(2) To be published in the S. A. J. E. under the title: "Bantu
Wages in South Africa".

TABLE II.

Average annual earnings of Whites and Bantu employed
in private manufacturing and construction industries.
1935-36 to 1960-61

Year	Average annual earnings at current prices		Average annual earnings at 1959-60 prices		Average annual earnings at 1959-60 prices. Increase over previous year	
	Whites	Bantu	Whites	Bantu	Whites	Bantu
	R	R	R	R	%	%
1935-36	452	84	1,074	200		
1936-37	468	88	1,101	207	2.5	3.5
1937-38	486	92	1,097	208	(-)0.4	0.5
1938-39	492	94	1,101	210	0.4	1.0
1939-40	512	96	1,130	212	2.6	1.0
1940-41	538	102	1,140	216	0.9	1.9
1941-42	616	120	1,222	238	7.2	10.2
1942-43	674	140	1,241	258	1.6	8.4
1943-44	714	162	1,255	285	1.1	10.5
1944-45	768	184	1,313	315	4.6	10.5
1945-46	798	192	1,337	322	1.8	2.2
1946-47	850	200	1,393	328	4.2	1.9
1947-48	918	210	1,437	329	3.2	0.3
1948-49	982	220	1,444	324	0.5	(-)1.5
1949-50	1,034	222	1,486	319	2.9	(-)1.5
1950-51	1,106	234	1,499	317	0.9	(-)0.6
1951-52	1,244	253	1,559	316	4.0	(-)0.3
1952-53	1,348	266	1,588	313	1.9	(-)0.9
1953-54	1,422	278	1,634	320	2.9	2.2
1954-55[a]	1,526	288	1,709	323	4.6	0.9
1954-55[a]	1,540	292	1,725	327		
1955-56	1,621	300	1,774	328	2.8	0.3
1956-57	1,692	308	1,817	331	2.4	0.9
1957-58	1,761	316	1,817	326	-	(-)1.5
1958-59	1,819	330	1,836	333	1.0	2.1
1959-60	1,872	348	1,872	348	2.0	4.5
1960-61	1,938	371	1,907	365	1.9	4.9

(a)
Certain changes in the coverage of the Industrial
Censuses were made in 1955-56. For compara-
tive purposes, therefore, the 1954-55 averages
are shown first on the basis of the coverage up to
1954-55, and then on the basis of the coverage for
the years 1955-56 onwards. The manufacture of
motor vehicle tyres, motor vehicle batteries and
the assembly of motor vehicles are included for
all years.

NOTES:

(1) Average annual earnings include ordinary, incentive
and overtime wages, holiday and other occasional
bonuses and payment in kind, as well as the
employers' contributions to holiday, pension/provident
and medical funds, but exclude the employers'
contributions to Unemployment Insurance and
Workmen's Compensation Funds.

(2) The figures for the years 1935-36 to 1955-56,
1956-57 (Bantu only), 1957-58 (Bantu only),
1958-59 and 1959-60 are based on the Industrial
Censuses of the Bureau of Census and Statistics.
(Figures for 1956-57 to 1959-60 are preliminary).
Before calculating the averages, employment
figures were adjusted to exclude working proprietors.
For the other years the average wages have been es-
timated by assuming the annual increases to be
equal to those shown by the monthly sample survey
of the Bureau. (Actual averages based on the
Censuses and the sample survey are not strictly
comparable).

According to Steenkamp, these figures "reveal a sharp rise of over 50 per cent in the real average income of the Bantu worker during the war years, but practically no increase during 1945-46 and 1957-58. Since 1958-59 and in particular since 1959-60, however, a rapid annual rise took place. The average real income of European employees rose far less...between 1939-40 and 1945-46, but between the latter year and 1957-58 increased by nearly 36 per cent.. "Over the entire period 1935-36 and 1960-61, however, Bantu "real average incomes" increased by2. 4 per cent per annum compared with 2. 3 per cent for Europeans.

Similar conclusions were arrived at byDr . F.van den Bogaerde in a thorough study of the entire wagepattern in the metallurgical industry. He attempted, among other things, to trace the pattern and trend of wage differences between ethnic groups employed in the metal industry of South Africa. Throughout his work he distinguished between pure differentials (which measure the difference in wage caused by the specific dimension in question, i. e. race, and general differentials which simply measures the difference in average labour income between units grouped according to a given criterion,e.g.race.

Pure ethnic differentials in the metal industry were, however, difficult to obtain, because, with the exception of some semi-skilled occupations, the only occupations filled by both White and non - White employees were those of watchmen and lorry drivers. Since the numbers of White employees concerned were small, the pure ethnic differential obtained here could not be regarded as representative of the industry as a whole.

Van den Bogaerde's investigation was consequently mainly con- fined to the trend in general ethnic differentials, which are obviously influenced by differences in technical skill as well as racial attributes. His findings can be summed up as follows. On the whole and over the entire period of about 30 years since 1925, general ethnic differentials declined as regards the Europeans / Bantu, European/Coloured and European/Asiatic ratios declined. These declines were not uninterrupted and, in fact, include relatively long periods of increasing differentials. While the overall decline could theoretically be ascribed to decreasing wage differentials according to skill, or to decreasing pure ethnic differentials, the main reason for the decline is probably to be found in the penetra- tion of non-Whites into more skilled occupations, i. e. improvements in the occupational distribution of the various non-White groups. His main statistical series relevant to our subject are shown in Table III.

TABLE III

Ethnic Income Differentials according to the Industrial Census, based on the Average Incomes of Production Workers in the Metal Industry 1924/25 to 1953-54.

	WESTERN CAPE			PORT ELIZABETH					DURBAN			SOUTHERN TRANSVAAL			
	E/B	E/C	C/B	E/B	E/C	C/B	E/B	E/C	E/A	A/B	C/A	C/B	E/B	E/C	C/B
1924-25	236	187	126	379	257	147	610	145	521	117	358	419	650	311	209
26	273	194	141	407	242	168	514	124	536	96	432	414	644	293	220
27	323	185	175	349	242	144	561	131	478	117	365	428	640	339	189
28	286	190	151	332	258	129	518	136	463	112	341	382	662	342	193
29	300	194	155	335	245	137	496	103	468	106	453	480	632	437	145
30	330	210	157	317	254	125	500	102	453	110	445	492	638	341	187
1932-33	571	208	274	328	179	183	510	161	523	98	326	318	641	366	175
34	423	219	195	346	205	169	486	141	454	107	322	344	673	379	177
35	284	222	128	366	250	146	506	104	466	109	446	485	664	404	164
36	286	221	129	314	247	127	545	137	522	104	382	398	663	412	161
37	280	221	127	325	235	138	510	135	472	108	350	378	645	399	162
38	313	230	136	320	233	138	525	137	471	112	343	383	635	415	153
39	287	238	120	303	204	148	534	132	464	115	352	406	622	370	168
40	298	260	114	309	229	135	551	135	446	124	331	409	624	361	173
41	318	259	123	318	199	160	495	111	409	121	369	447	604	338	179
42	318	247	129	287	205	140	523	130	420	125	322	401	565	334	169
43	305	231	132	380	266	143	542	139	450	120	323	389	507	311	163
44	257	215	120	318	189	168	496	124	377	132	305	401	458	308	149
45	288	223	129	327	222	148	440	122	383	115	314	360	423	281	151
46	291	201	145	332	203	164	410	112	316	130	282	366	427	302	158
47	289	135	142	324	185	175	387	110	282	137	256	351	424	271	152
48	328	204	147	351	228	154	427	129	292	146	226	331	448	279	154
49	319	138	141	362	215	169	450	125	299	150	239	359	475	292	159
50	334	224	149	366	225	162	467	118	298	157	252	396	509	299	160
51	365	259	141	383	236	162	467	134	328	142	246	350	502	338	148
52	378	262	145	322	206	156	461	125	319	145	254	368	517	365	142
53	391	261	149	417	237	176	490	141	314	156	223	348	528	358	148
54	399	261	153	373	239	156	485	141	314	155	223	223	528	368	143

Source : Table 97 in "Die Loonstruktuur, 'n Ekonomiese ontleding van loonvorming en loondifferensiasie in die Metaalbedryf sedert 1924-25." F. van den Bogaerde, unpublished D.Com. thesis, University of Pretoria.

E - European; B - Bantu; C - Coloured; and A - Asiatic.

TABLE IV

Gross Earning Differential of General Labourers and Operators 1950-59.

	WESTERN CAPE	PORT ELIZABETH	DURBAN			JOHANNESBURG
	C/B	C/B	C/B	A/B	C/A	C/B
1950	121	126	-	110	-	139
51	98	110	107	106	101	107
52	121	98	186	132	141	137
53	119	115	123	143	86	127
54	124	123	136	-	-	122
55	119	116	122	131	93	108
56	106	123	103	126	82	119
57	111	113	127	119	106	107
58	110	110	107	111	96	111
59	104	111	134	114	117	110

Source : van den Bogaerde, table 98(1).

TABLE V

Gross Earning Differential of Lorry Drivers 1954-59

	WESTERN CAPE			DURBAN						JOHANNESBURG		
	E/B	E/C	C/B	E/B	E/C	E/A	A/B	C/A	C/B	E/B	E/C	C/B
1954	-	123	-	228	-	158	144	-	-	185	178	104
55	154	151	102	157	143	147	107	103	103	198	183	108
56	-	111	-	196	117	143	136	123	167	188	157	120
57	199	110	181	211	104	163	129	156	202	174	160	109
58	162	114	142	173	92	141	123	153	187	175	158	111
59	155	133	116	201	109	145	138	133	184	178	148	120

Source : van den Bogaerde, table 98(3).

With regard to the data in Table IV it must be remarked that the classification "general labourers and operators" is not a very homogenous occupational group so that the differentials here shown are little more than general differentials. Table V on the other hand is an occupationally homogeneous grouping but here the number of cases included are small and unrepresentative of the industry. It does indicate, however, that a wage differential exists which cannot be explained by any other factor than racial differentiation.

This impression is confirmed by some official figures for minimum and average actual wage rates and average earnings in the Building Industry.

TABLE VI
SOUTH AFRICA

BUILDING INDUSTRY - MINIMUM AND AVERAGE ACTUAL RATES AND AVERAGE EARNINGS -
September (Examples for Cape Peninsula and Pretoria only)

OCCUPATION	MINIMUM WAGE RATES			AVERAGE ACTUAL WAGE RATES[1]			AVERAGE EARNINGS[2]		
	1946	1957	1959	1946	1957	1959	1946	1957	1959
CAPE PENINSULA				- Pennies per Hour -					
EUROPEANS									
Carpenters	40	43	43	42.5	45.8	49.0	51.1	92.0	97.8
Bricklayers	40	43	43	40.5	46.0	46.6	51.8	93.4	96.4
Plumbers	40	43	43	42.1	46.2	51.1	50.9	94.5	97.5
Painters	35	38	38	37.2	38.9	41.2	45.5	88.0	89.6
COLOUREDS									
Carpenters	40	43	43	41.9	44.0	44.1	50.2	-	93.8
Bricklayers	40	43	43	42.4	43.4	44.5	50.8	89.2	93.6
Plumbers	40	43	43	43.4	45.1	44.5	52.4	91.6	94.4
Painters	35	38	38	37.5	38.2	39.0	47.6	67.1	88.4
Labourers	12	12	12	-	13.9	13.9	-	26.6	27.2
BANTU									
Labourers	12	12	12	-	12.5	12.5	-	25.4	26.5
PRETORIA				- Pennies per Hour -					
EUROPEANS									
Carpenters	42	45	57	47.4	50.1	62.8	56.5	104.4	109.4
Bricklayers	42	45	57	46.4	52.1	63.4	55.0	104.1	109.0
Plumbers	42	45	57	48.8	53.0	64.6	57.1	105.6	110.5
Painters	42	45	57	44.9	47.6	60.4	53.1	102.0	107.8
BANTU									
Labourers	8.0	8.8	8.8	-	8.8	11.9	-	18.6	19.9

Source: Special Report No. 235 (Labour Statistics - Building Industry, 1959 - Pretoria, Government Printer).

1/ Excludes overtime, allowances etc.
2/ Includes total earnings taking into account overtime, allowances.

While, as usual, the minimum wage rate for the occupations concerned do not differentiate according to race, the average wage rates earned by Coloureds in specific occupations were lower than those earned by Whites. While the differential decreased between 1946 and 1957, it increased again between 1957 and 1959. A pure ethnic wage differential between Coloureds and Bantu also seems to exist. Finally the fact that the industrial, occupational and skill distribution of the various races differ considerably is illustrated by the following statistics.

TABLE VII

Percentage Distribution of the Economically Active
Population According to Industry, 1951.

Industry	Europeans %	Bantu %	Coloureds %	Asiatics %
Agriculture & Fishing	14.8	40.3	24.2	13.7
Mining	5.8	14.4	0.9	0.6
Secondary Industry	26.0	12.0	27.4	25.9
Communications	11.5	2.3	3.5	2.6
Commerce	18.2	3.2	6.2	24.5
Service trades	20.8	23.8	27.6	17.8
Other trades	2.9	3.8	10.2	14.9
	100.0	100.0	100.0	100.0

Source: Population Census, 1951.

TABLE VIII

Percentage Distribution of the Economically Active
Population according to Occupation, 1951.

Occupation	Europeans %	Bantu [3] %	Coloureds %	Asiatics %
Professional & technical	9.7	0.6	2.0	2.6 [2]
Administrative	8.0	0.2	0.4	10.7
Clerical	20.2	0.5	1.3	3.2
Selling	6.4	0.4	1.6	12.4
Farming & Fishing	14.7	46.3	24.0	13.7
Mining	3.3	17.2	0.8	0.4
Transport operation	3.1	1.2	2.9	4.1
Industrial occupations [1]	22.5	1.3	19.0	19.4
Manual labour	4.7	22.0	18.9	10.7
Services and undefined	7.4	10.3	29.1	22.6
	100.0	100.0	100.0	100.0

(1) Skilled and semi-skilled workers in manufacturing and construction.
(2) Of whom 83 per cent is engaged in the wholesale or retail trade.
(3) Males only.
Source : Population Census, 1951.

TABLE IX

Percentage Distribution according to skill of employees in industries subject to wage determinations, 1937-1954.

Degree of Skill	Europeans	Bantu	Coloureds	Asiatics
Skilled	86.0	4.4	17.8	36.8
Semi-skilled	12.8	15.4	30.9	31.2
Unskilled	1.2	80.2	51.3	32.0
	100.0	100.0	100.0	100.0

Source: Wage Board reports. About 300,000 workers were involved in these determinations.

Economic Analysis

Despite the rather poor statistical picture I have been able to draw of the growth of the incomes and the occupational patterns of the races in South Africa, it seems at least clear that :

(a) there are large differentials in average income levels between the races, differentials which do not show a clear long-term time pattern ;

(b) there are important differences in the occupational distribution of the various races; these differences may be becoming less absolute as time elapses; and

(c) there seems to be some indication of certain "pure" ethnic wage differentials that cannot be explained in terms of occupation.

Assuming that we are interested in prediction and prescription, the fundamental question is whether the above phenomena can be meaningfully analysed in terms of human factors which are predictable and capable of deliberate change. My object is to see whether the science of Economics possesses some of the analytical tools required.

It may be necessary to stress the importance of the need for objective analysis. The question is not in the first place whether the given phenomena are desirable - obviously neither (a) nor (c) could be so regarded in any absolute sense - but whether they are economically understandable. Only after having answered the purely "scientific" question could we, as economists, rationally pursue the matter in terms of political economy, i.e. what should be done about economically undesirable tendencies. [3] In South Africa we are so tragically impatient to settle the last question that we seldom attempt to address our minds unreservedly to answering the first. Yet it should be possible to do so without the perpetual fear that differences in political philosophy might cause misunderstandings and in the United States, for instance, interesting work in this connection has been done by a number of scholars. (4)

(3) This is still far removed from justifying, or for that matter, questionning broader political changes. I am referring throughout to economic analysis and policy within a given political order.

(4) Cf. Eli Ginzberg, The Negro Potential, and Gary S. Becker, The Economics of Discrimination, both discussed by Elton Rayack in an article:"Discrimination and the Occupational Progress of Negroes" in The Review of Econ.& Statistics, May, 1961.

To begin with, it may be useful to deal with two factors often referred to as predominant in the analysis of our problem. The first is the socalled infinitely elastic supply of unskilled labour, and the second is the statutory "colour bar". As a very general approximation one might add that the first approach attempts to remove the problem from the sphere of race relations and to classify it as a "normal" labour issue, possibly complicated by features of economic "dualism" or "underdevelopment" in South Africa, while the second approach tends to hold the Government's racial policy entirely or mainly responsible for the existing income pattern. Neither approach seems entirely satisfactory to me.

In his most illuminating article already referred to, Professor Steenkamp, (following Dr. Stephan Viljoen and others) concludes that the basic factor in the very large skilled/unskilled wage differential is the elasticity of supply of unskilled labour, "as it is" he adds, "in all countries with a large underdeveloped sector".

This view requires some qualification. I should prefer to relate this concept of elasticity to the long-term historical supply function incorporated, e.g. in the classical iron law of wages. In the short run the (Marshallian) supply curve of the Bantu labourers pouring into the cities may be very inelastic with regard to the existing wage rate. The main point I wish to make in this regard is, however, that the very large supply of "unskilled" as compared with "skilled" labour is explained by the fact that the main sources of the two types of labour are in very different phases of the demographic cycle for reasons mainly connected with the present different characteristics of each race. Had the entire South African population consisted of European stock, the supply curve would have been much less elastic.

To fully understand the wage and income structure in South Africa, it is, therefore, necessary to bring the demographic differentiation of the South African population into the analysis as an indispensible analytical tool (not normally required in countries with racially homogeneous population) and not as an afterthought. We have, in South Africa, at least three clearly distinguished and different races - the European, the Bantu and the Indian. The "Coloured" population is at present also regarded as racially a class by themselves. What basis these differentiations have, or do not have, in strict biological and anthropological senses is not of direct importance for economic analysis. The definition of race which suffices for our purposes is that which conceives race simply as a group of people who are in actual life regarded by the community at large as

a distinctive biological group with a common ancestry. [5]

To take this point somewhat further: if, by some curious demographic twist the age structure and natural increase of the Bantu should assume European dimensions overnight, is it likely that the skilled/unskilled wage differential in South Africa (which is 300 per cent at present) will approximate the 20 to 30 per cent in Europe? The differential seems to be a result of more than differences in elasticities of supply. Is it the "statutory colour bar"?

"It is often overlooked", according to Steenkamp [6], "that the colour bar, though buttressed here and there by legal enactment, is mainly a social and cultural phenomenon." The only statute which could be said to have had an effective influence is the Mines and Works Act (Act 12 of 1911, as amended, especially in 1926). This act in effect introduces a colour bar into the Mining Industry. The history of the introduction of the act proves, however, that the bar was not ideologically conceived by the Government, but more or less forced upon it by general European opinion. The only other statutes directly providing for prescription of the race of employees are the Native Building Workers Acts of 1951 and 1955 and section 77 of the Industrial Conciliation Act (1956). The number of prescriptions so far have, however, been quantitatively insignificant and could not be regarded as having had much influence on the general picture of wage and other income differentials. The potential consequences of "job reservation" - as the powers under section 77 are generally known - will, however, be discussed below. The terms of the Apprenticeship Act (37 of 1944) do not differentiate as between race, but the general requirements for the enrolment of apprentices are such that the bar to most "skilled" occupations : i.e. as defined in the act, is at present institutionally effective. Once some non-Europeans somehow manage to qualify, however, the stream could institutionally speaking, increase rapidly.

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(5) This was the definition accepted by most social scientists at the Honolulu Conference on Race Relations in world perspective in 1954. See report with same title published by Hawaii Press, Honolulu, 1955.

(6) Loc. cit.

If we should include in our preliminary analysis all state decrees that may in effect interfere with the ability of any race to procure wealth and income in South African we should add at least the laws concerning land tenure and population migration.

In both cases a statistical analysis of the influence of state intervention on income differentials is, however, not feasible. The necessary data for meaningful correlations are just not available. Moreover, the actual economic influence of the interference seems to have been slight up to date.

In the case of land tenure restrictions [7] only a section of the Indian group has in the past had the financial strength and experience to draw the land factor deliberately and on significant scale into their economic decisions and their process of income formation. To them the original "pegging acts" before 1950 and subsequently the Group Areas Act of 1950, must have been serious impediments in principle but the extent of the exemptions granted over the years suggests that so far this factor has not been a quantitatively important limitation. The Group Areas Act, which incidentally removed the absolute bar on new acquisition of land by Indians imposed under the pegging acts, may in future become a limitation of much practical importance, but this will depend on the application of its provisions which differentiates between races but do not in principle discriminate in favour of any particular race. Such economic threat to the Indian population, as there may be, would lie in the application of this law, not in its principle.

The legal position concerning migration [8] has likewise probably had little economic significance in practice up to the recent past and whatever the significance may have been it could hardly be

(7) The relevant laws are: The Natives Land Act No. 27 of 1913; The Native Trust and Land Act of 1936; The Group Areas Act No. 77 of 1957. The effect of these statutes is to allocate the ownership and certain forms of occupation of land in South Africa among four racial groups.

(8) The main instruments of control are the Natives (Urban Areas) Consolidation Act No. 25 of 1945 and the Natives (Abolition of Passes and Co-ordination of Documents) Act. No. 67 of 1952. Indian migration is restricted under the Immigration Act No. 22 of 1913.

said to have influenced income differentials greatly. Very recently the administration of these laws may have prevented some movement of labour from low wage areas to higher wage areas, but this intervention has been marginal in practice. In general, a shortage of unskilled labour has nowhere in South Africa been a noteworthy limitation on production during the past decades - nor would greater labour mobility have enabled the unskilled to secure a larger part of this income.

While it is not denied that the political differentiation of the races could have very important economic consequences, we suggest that the analysis of this factor, as well as of the supply elasticity factor, and all other demographic and cultural facts that have to be marshalled in this connection, require a more general theoretical approach, one which could embrace all institutional and political situations and place them in their functional perspective. The outlines of such an approach are sketched in the following paragraphs.

What we wish to understand are the forces determining the income differential between the races and the forces determining the wage differential between skilled and unskilled work in South Africa. In the analysis we recognise (which does not mean that we support or oppose) the existence of a demographic differentiation of the population - a factor which does not appear in the national economic systems of those countries that used to serve as points of departure in the development of general equilibrium theory.

Let us commence with the simplest case, i.e. two races and two or three types of labour working under static conditions of constant cost. We shall subsequently have to remove some of these assumptions. The two races could be referred to as "Europeans" and "Bantu" and the three types of labour as "skilled", "semi-skilled" and "unskilled". Let us assume further that each race is differently endowed with faculties to perform these three kinds of labour.

Perhaps a word about the latter assumption is required. According to research in industrial psychology no race has a monopoly of any particular kind of labour skill, but at this stage of the cultural evolution of the races, the modes, or even the medians, of the frequency distribution of the members of each race within the skill interval of each of the three skill grades chosen will differ considerably. This is the empirical evidence we need, because we are in fact studying the ethnic differentials with regard to average earnings in each of the skill grades.

The production possibilities of each race in each occupation is measured by a common measure of performance or unit of economic efficiency. One may, of course, define the cost of skilled work in terms of the amount of unskilled work forgone - the Haberler opportunity cost concept - but we still have to use some unit of measurement - such as yards, numbers, ounces, etc. Since we have abstracted from the commodity types produced we must conceive of a unit that represents some index of all these various physical units - and simply call it a unit of efficiency. The less "efficient" a people is in a particular service, the scarcer that service among the particular community.

Patterns of production possibility ratios for each race could be as suggested below. The patterns assume that the "African" average efficiencies are lower than those for Europeans, and that the total number of efficiency units of unskilled labour within the capabilities of each race is larger than the total number of efficiency units of skilled labour, but in different proportions for each race. (Indeed even if the efficiency unit measuring the amount of unskilled labour is the same as that measuring skilled labour, it would not be surprising to find that, if a community has to choose to do either exclusively skilled or exclusively unskilled work, they would be more efficiently occupied in the latter direction. This would be so if the results of the higher efficiencies of the skilled members of the community were largely offset in the total by the necessarily insignificant results produced by their untrained kinsmen endeavouring to function like skilled people.)

Patterns of Production Possibilities: Units of Average Efficiency Produced in 10 Labour hours.

	"Europeans"	"Africans"
"Skilled work"	10	1
"Unskilled work"	13	6

The skilled/unskilled wage differential could now arise under three different sets of circumstances, namely the cases of full isolation, full integration and economic contact.

If the two races were isolated from each other economically, the wages paid in each society would, under our constant cost assumption, correspond to the ratio of efficiency within that society, so that among Europeans the differential would be 130 , and among Africans 600.

If the two races were simply integrated demographically [9]
the wage ratio between skilled and unskilled labour would be deter-
mined by the weighted [10] averages of 10 and 1, on the one hand,
and 13 and 6, on the other hand - e.g. if the economically active
members of the races are equal in number the wage differential
would be almost 70 per cent.

If the two races were not demographically integrated, but
merely economically brought into contact in order that an advanta-
geous exchange of services could take place, yet a different econo-
mic pattern seems to result.

Because migration from one racial group to another is im-
possible, members of each race can only offer that service which the
other race is prepared to accept across the racial border - and
complete occupational specialisation seems to become unavoidable.
In fact, our assumption of constant cost conditions imply for each
community that everybody can perform skilled functions equally
well or equally badly - which also leads to complete racial speciali-
sation.   It could thus be said that in this example of only two
commodities the constant cost assumption also defines the economic
consequence of the indiscriminate attitude that race is synonomous
with a certain degree of skill.

In our example, the Europeans have a comparative advantage
in the performance of skilled functions and the Africans a compara-
tive advantage in the performance of unskilled functions. Each will
specialise completely.

The wage differential, which may now be defined as the (double
factoral) terms of trade between the two races, would lie between
130 and 600 - its precise position depending ideally - as John Stuart
Mill had it - on "the intensity of reciprocal demand", but in practice
by all institutional and political factors that may influence the
conditions on which each group may offer its services. Thus for
each racial group an "offer curve" could be drawn to determine the
equilibrium terms of exchange.

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(9) Weighted by the numerical proportions of the two races.

(10)"Demographic integration" would mean the disappearance of
   race recognition from all social behaviour.

The main difference between this case and that of full demo-graphic integration is that while the skilled/-unskilled wage differential in the "contact" case could equal the rate determined for "integration", it need not do so, and indeed, a major task is to discover the forces that cause the differential to move up and down within the limits of the comparative efficiencies.

One purely economic factor is the matter of payments balance between the two races. If no credit is granted - and it seems reasonable to assume that a community providing exclusively unskilled labour will receive little more than short term credit - the African group must receive enough from unskilled work to pay for the "skilled work" they receive. (Obviously the Bantu in South Africa do not buy "European skills", but they buy the goods embodying European skills. Elsewhere in Africa, the idea of buying European skills no longer sounds strange). Since both racial groups use and trust mainly one currency between them - South African Reserve Bank promises to pay - they are virtually on what would internatio-nally have been known as a (gold) currency standard. Under these circumstances a decline in the terms of trade for any given reason would, ceteris paribus, immediately set forces in motion to restore the terms of trade to their previous level.

Before, however, attempting to apply the above hypothesis to South African conditions, there are a number of additional theoreti-cal points to cover, although to the student of international trade theory all this is very familiar ground.

An interesting point is the consequences of introducing a third type of labour, namely "semi-skilled", into our arithmetic model. If Europeans have a comparative efficiency advantage (or disadvantage) over Africans in an intermediate position between "unskilled" and "skilled" work, it is uncertain who will produce this service in the racial "contact" position without more know-ledge about reciprocal damand. As long as our assumption of constant cost is upheld, only one race will have to perform all the semi-skilled work there is to be done, and this seems to be the point to relax that assumption, which means abandoning the arith-metic example and using the Haberler transformation (or produc-tion possibilities) curve. This curve describes the changing marginal rate at which the community is able to substitute one service type for another. (This would also, incidentally relax the assumption that races are indiscriminately and rigidly associated with given degrees of skill.)

Let us assume that most of the Bantu people are, for example,
relatively efficient in performing farm service but few have the
general background or the specific training for machine operator
service. The marginal rate of substitution of farm service for
machine service will then rapidly increase as more of the latter
service is performed. The transformation (or production possi-
bilities) curve will look something like the graph below. If we
suppose, for purposes of analyses, the Bantu to be isolated from
the rest of the community, the Bantu indifference curve [11] with
respect to farm service and machine operation would place such a
low marginal substitution value on machine operation over most of
the length of the indifference curve that the amount of this service
to be performed would be close to zero - as in the graph.

GRAPH

MACHINE OPERATION

Bantu indifference curve

Bantu transformation
curve

Q

FARM SERVICE
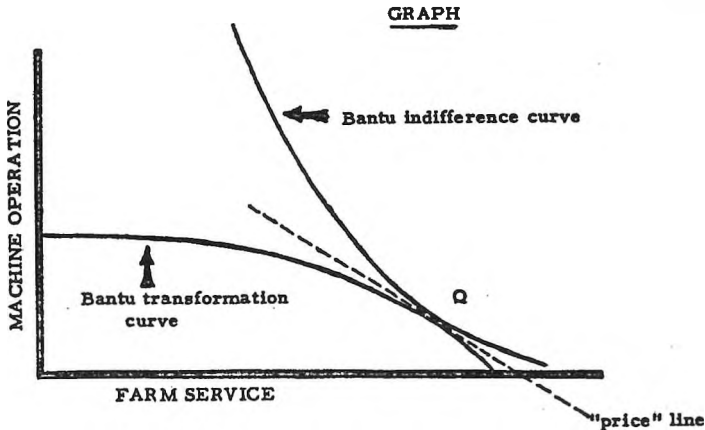
"price" line

In contact with the other races in South Africa, a new price
line becomes effective, one which attaches more value to machine
operation in relation to or in terms of farm labour, and the point
of tangency between this (flatter) price line and the African trans-
formation curve moves to the left of point Q. However, due to the
rather flat shape of the transformation curve over most of the area
to the left of Q, (high marginal farm-service-cost of machine
operation for the African), there is only limited scope for this
occupational redistribution of labour.

11. Assuming that by the application of the compensation principle,
    the conception of a group indifference curve to be feasible.

An interesting aspect of our example is that economic contact with the European led to less specialisation in production (though not necessarily in consumption) for the Bantu instead of more - as the text book examples of international trade usually suggest. This is called "diversification", a word which is gaining currency in official circles in South Africa no less than in the international officialdom. The diversification in our example is, however, purely a price phenomenon. The factor of which the Bantu had little supply, but even less demand, became more valuable in the light of the demands of the entire South African economy. To diversify for other than price reasons would not lead to a gain in economic welfare for the particular population. This could be easily demonstrated on the graph.

The exact slope of the new price line - if it is at the same time meant to be the full factoral terms of trade no other economic services enter into the interracial contact - will depend upon the size and shape of the transformation curves of both races and the sets of user indifference curves of both races,[12] in order to bring about a balance of real payments between the two racial groups.

At least one important problem remains unattended: will the real price line of machine operation in relation to farm service apply to all races in South Africa, or would each price line be qualified with respect to race as well - as seems to be suggested by some of the statistics quoted earlier.

If the South African economy is prepared to sustain some difference in the wages paid to Coloured and Bantu machine operators, and applies the same differential (in the same direction) to the wages of these groups in the market for farm services, then the slope of the price line for the Bantu would be the same as that for the Coloured. In general, a pure ethnic differential operating equally throughout all occupations will have no influence on the occupational distributi on of each race - although it would of course have an influence of the inter-racial terms of trade. Such a universal pure ethnic differential if economically arisen would be a kind of "exchange rate", reflecting the quality of Bantu work in relation to Coloured, or Indian, etc., all this in the eyes of employers generally. If the differential has no economic motive, it would have to be regarded as a (negative) import duty protecting the standard of living of the group receiving the higher wage levels. The "duty" would be fixed by the ruling ideas of

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(12) C.F.C.P.Kindleberger: International Trade, Chapter 5.
Richard D. Irwin Inc. Homewood, I inois, 1955.

what the differences between the races in basic living requirements
are. This is obviously a large subject which could be pursued
much further but we shall have to leave it at that for the present,
except for adding that the "exchange rate" will change as general
levels of relative efficiencies change - a matter of cultural and
technical evolution along the lines of development theory - , but
the height of the "import duty" seems to be a function of non-
economic forces.

If, on the other hand, the South African economy pays somewhat
more for Coloured labourers than Bantu in the textile industry, but
less in the mining industry, the argument in the previous paragraph
breaks down, and we have to conclude that "pure" ethnic wage dif-
ferentials are fully explained, not by a universal ethnic differentia-
tion, but by assumed differences in specific aptitudes of certain
races for certain kinds of work - a special case of product dif-
ferentiation, rather like the idea that no other country can produce
quite the same quality of win es as France, and no other country
can equal the reliability of Swiss watches. This would rule out
inter-racial competition and introduce a system of absolute (rather
than comparative) efficiency differences with the average income
differentials between the races depending altogether on reciprocal
demand rather than relative efficiencies.

Whatever the case may be, it seems clear that the racial
distribution of the total gain to the South African economy from
inter-racial economic contact could be analysed interestingly through
the forces determining the inter-racial terms of trade. For our
purposes, the terms of trade between a given race, let us say the
Indian community, and the rest of the South African peoples, can be
said to measure the amount of real effort and wealth the Indian
group has to sacrifice in order to gain a unit of real income from
"abroad", i.e. from the South African economy generally.

As in "international" trade during the past 50 years, changes
in the terms of trade of the Indian community in South Africa were
largely due to changes in demand and alternative supply for over
the entire period their trade terms seem to have deteriorated,
which means that Indians generally have to work harder to main-
tain the same standard of living.

The Indian community outside the province of Natal speciali-
sed in retail trade to a very large extent. Originally, i.e. during
the first 30 or 40 years of the century, this has probably led to an
improvement in their racial terms of trade with other races,
especially compared to other forms of "exports" such as labour

services. During the past decade or more, however, important changes have taken place in the retail market on both the demand and the supply side. The rise in the income levels generally in South Africa, the growth of cities and modern suburban shopping centres, the rise of the Bazaar and chain store systems and finally the advent of the supermarket, brought about a serious decline in the relative value of the services of the typical small Indian trading store. Moreover, the increase in the Indian population happened to be much higher than that of the communities they traditionally served. Finally Bantu squatter camps and down-town slums, traditional trading fields of Indian shops, have been removed on a tremendous scale by municipalities, leaving hundreds of shops completely without any visible means of support.

This gradual deterioration in their terms of trade with the "other" communities in South Africa is making it imperative for the Indian community to branch out into other lines of "export", for they have over specialised in a direction which did not prove to have dynamic possibilities. This does not mean that the about 500,000 Indians in South Africa should "diversify" their economically active members in all possible directions. It simply means that the emphasis of specialisation must shift.

A Short Diversion on the Theory of International Trade

The problem of the terms of trade between the rich and the poor, the developing and the stagnant national economies of the world, has reached the political level of several U.N.O. enquiries and discussions; the international or rather interregional move-ment of labour has thus far received rather less scientific and political attention - but the very big unfavourable population growth differentials between already "over populated" regions of the world and the remaining areas will, in future, most probably bring this factor to the foreground as never before. Curiously enough the two problems have usually been discussed separately as if they were unrelated, while, in fact, they are inextricably bound together: it is the restraint on factor migration that gave rise to commodity trade and the terms at which it is carried on. In fact the only hope of the West to avoid mass immigration especially from Asia is to improve the terms of trade of these countries in line with the growth of the population. In connection with this problem, Eugene Black, the financially and diplomatically famous President of the International Bank expressed himself as follows : "The plain fact is that the conditions for a full integration of the political and economic aims of the rich and the poor nations

in the free world community do not exist, nor is it possible to
foresee a time in the future when they will. For the rich nations
the problem is to live constructively with the historic trans-
formation going on in the underdeveloped world, not to try to
'solve' it". This task of "living constructively with the problem",
Black calls the "Diplomacy of Economic Aid" and he regards this
as a new vocation for the West. That the East may demand more
than such a show of goodwill and even effort on the part of the
West seems inevitable: the latter also has to pay in capital (for
the right to retain the land on which they live to the exclusion of
the East) so that economic opportunities can be transferred to
unemployed labour instead of the other way around.

To all this the classical and neo-classical theory of inter-
national trade and development still provides a most useful
existing bag of analytical tools. Some of the basic ideas of
Ricardo on trade theory is destined for a revival no less vigorous
than that of the Malthusian population theory, and one can almost
hear the ring of Ricardo's warning to his colleague: "Political
Economy, you think, is an inquiry into the nature and causes of
wealth: I think it should rather be called an inquiry into the laws
which determine the division of the produce of industry among the
classes who concur in its formation. No law can be laid down
respecting quantity, but a tolerably correct one can be laid down
respecting proportions." (13) Both Ricardo and Malthus were
certainly less interested in the fact that groups of people were
separated by space than in the fact that they were differentiated
by nature or culture, so that it could be claimed that the classical
theory of international trade fits more realistically in a system
of demographic rather than geographic labour immobility.

Policy Theory

The scientific study of a human hardship such as low per
capita incomes normally has prescription in mind and the present
study is no exception. The kind of analysis introduced in this
paper certainly has much to contribute to the improvement of the
efficiency of Government administration in South Africa but before
calling upon the reader to take part in an analysis of these possi-
bilities for better government from an economic point of view,
certain remarks about economists and politics seem necessary.

(13) Letters of Ricardo to Malthus p. 175.

Since scientific progress depends upon intellectual honesty, it seems to me futile to abstract from the heterogeneity of our population in structural analysis, or to oppose the existence of demographic differentiation[14] in South Africa in economic policy theory. Only circular reasoning can result from confusing one's point of destination with one's point of departure.

By the same token, deliberate attempts to show that demographic differentiation in Government administration or social behaviour is economically rational, is equally offensive, especially since such a bias cannot easily be detected by experiment or calculation.

In between these two extreme roles of the fundamental critic and the fundamental apologist, there is room for a third economic function – to take the present social system as given, but to strive to render it economically more efficient.[15]

A fourth possibility, to turn away from the entire problem and devote one's time to something politically more "neutral", may appear to be the most sensible thing to do. I have, however, come to regard the issue as of great practical importance in the daily lives of all the races in South Africa. The vitally necessary increases in the average incomes per person among the non-White races depend on the growth of the economy of South Africa as a whole, a process which draws its dynamism from private entrepreneurial action. This essential factor functions well in an atmosphere of economic uncertainties and political certainties. A basic requisite for economic advance in South Africa is thus to arrive at a formula that can properly explain and predict Government interference with the economic system for purposes of political

(14) By "demographic differentiation" we mean that the population is described or regarded in terms of the separate features of its various racial groups.

(15) This approach was, for example, adopted by Mr. Oppenheimer on behalf of the Anglo-American Corporation in his most recent annual report: ".. The fact is that the wages paid in the gold mining industry have lagged behind those paid by other industries and the gold mines have in consequence become dependent to a great extent upon labour imported from other poorer countries. "Attempts to remedy this situation are, of course, made more difficult by the legislative colour bars which are imposed upon industry in South Africa, but even within this framework we believe that a great deal can be done" (my italics) H.F. Oppenheimer. Annual Statement to members of Anglo-American Corp. "The Star", June 7, 1962.

differentiation of the races. For such a formula to exist, it would, however, be necessary for the Government itself to understand the full economic contents of its political administration and to act consistently on that understanding.

What is required is a thorough re-examination of each instrument of political differentiation of the races to determine its economic consequences - to compare the economic consequences of the instruments regarded as a whole, to remove at least internal economic inconsistencies, but possibly even to remove external economic "inconsistencies" by suggesting administrative changes which would, without undermining the political system, correlate its economic consequences better with the principles of the existing economic system.

This is a very large task which certainly could not be accomplished in this paper, but one or two examples of what I have in mind may be quoted. (16)

Let us, for example, examine the possibilities of understanding the instrument of "job reservation" and providing it with an economic code of discipline. The principle behind job reservation seems to be the policy aim of redistributing real income (and job opportunities) in such a way that full employment of the population group in question is maintained, even if this means some sacrifice in the growth of the average income per person of the group. The South African Government, unlike a national Government of a homogeneous population, is however, appointed to act in the best interests of each racial group. Consequently it is in a position roughly comparable to the CONTRACTING PARTIES (17) to G.A.T.T. only with many more clauses of agreement (mostly implicit) to administer.

It follows from the above that the protection of certain workers in a given race against competition from another race should involve the South African Government in the additional political responsibility to investigate the loss of income to the excluded communities and to formulate compensations. It should at least involve the Ministry of Labour in a conference with the Ministry responsible

(16) In the meantime a debate, on scientific level, of the question of free inter-racial exchange of services vs. racial protection within the "contact" social system, would be very fruitful and should be encouraged.
(17) When spelled with capital letters this concept denotes the body of members rather than the members separately.

for the particular race until the latter receives the necessary political machinery to handle the situation.

This is a political problem in the sense that it requires a political decision, but it is clear that the decision can be more properly and clearly formulated against the terminological back-ground of our analysis.

The matter can, however, be pursued somewhat further in the technical terms of economics and Government administration. In the first place, a ban on "imports" of services from a given racial group may give rise to an automatic terms of trade and "balance of payments" adjustment of income levels which may impoverish all the groups concerned. Secondly, the general approach suggests the same administrative objections against the present system of job reservation as against the system of import control by (quantitative) quota. This is not the time to enlarge upon these administrative issues, but it should be pointed out that the well-known debate over import control vs. tariff protection may be useful for our purposes - for it is quite conceivable that the present form of quantitative prescription of job opportunities by race (which is, grantedly, resorted to only in very exceptional cases) could be replaced by a system of "tariff" protection of those jobs that are regarded as either strategically or socially important to a given group, or as necessary to develop the skills of the group in terms of the "infant industry" argument. In practice this would mean a special levy on such jobs according to the race of the incumbent.

To the extent that racial differentiation is practised voluntarily in the labour market, one already has indifference systems including more than wages per time unit of labour. Adding a levy to this existing social preference system would avoid the serious administrative stresses associated with the present system. In this context, it is possible that job protection by race may eventually be of more constructive value to the Bantu people than to other racial groups in South Africa.

This way of looking at the economic relations between the races, also suggests an important income obstacle for some races in the so-called principle of the "rate for the job". If applied rigorously throughout all occupations it could result in serious unemployment especially among Indian and Coloured groups who tend to "compete" with Europeans for jobs that are identically defined but in fact differ in the standard of performance required.

If, on the other hand the wage levels are forcibly brought down to the level paid, say to the Bantu, this would simply result in a redistribution of real income from labour to capital - an equally irrational result.

In general it would be inadvisable in wage policy to hit out directly at any specific ethnic wage differential. If the differential is merely a manifestation of an overall differential maintained throughout, the policy measure should be applied nationally, - something like adjusting the exchange rate - but if the differential is of the product differentiation kind, a blunt political equalisation would simply put the person involved entirely out of employment. Thus, even when the production possibility "areas" of the races (transformation curves) moves up with time to the point where the average incomes per person in each race differ by race in-substantially, important differences by race in the wages offered and demanded in specific jobs may continue to exist.

Spending and Multiplier Analysis

In general economic theory the multiplier function cannot be said to have been very useful in, or even intended for, structural analysis - in contrast to its use in cyclical fiscal and monetary policy. Its use in the present context is also, no doubt, limited but it seems that a high propensity to support one's own group where possible in one's spending habits does mean that the particular group remains in payments balance with the other groups at a relatively high level of employment. This has no meaning in period of rapid growth at full employment rates, but it could mean something for a group such as the Indian, who may be finding its income terms of trade with other groups declining steadily.

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