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SHORTAGES OF SKILLED LABOUR POWER AND CAPITAL RECONSTRUCTION IN SOUTH AFRICA

by Charles Meth

The purpose of this article is twofold. Firstly, it seeks to evaluate the claims of those who argue that skill shortages are a significant force for change in South Africa. Secondly, it attempts to develop a critical analysis of an article by a Marxist writer, who somewhat surprisingly places 'skill shortages' well upstage in a recent article which examined the restructuring of capital in South Africa. The topic of skill shortages is a hardy perennial on the local scene, the more so because the race question tends to obscure the nature of class warfare here.

According to a host of commentators, eliminating the colour bar will release a seriously binding constraint on the 'economy' and open the way to a period of unparalleled capital accumulation.

Statistics on skill shortages produced to support this claim share one important characteristic and that is their almost universal unreliability.

Given the conditions in this country, it is obvious that whether or not there really exists a skill shortage, a persistent belief that there is such a thing, particularly a belief that such shortages are widespread, is likely ultimately to have important political consequences.

Capital has long maintained that restrictive legislation and practice make such shortages endemic, but more significantly, the state has in recent times begun to voice similar claims - timorously at first, but latterly with increasing stridency. What is more, they are apparently prepared now to back their words with action, as the generalised easing of access to training, testifies.

The question is, why? Is there really a skill shortage?[1] Or is the phenomenon a convenient smokescreen behind which co-optation of an incipient black petty bourgeoisie can proceed?

Clearly, it would be absurd to deny that serious specific skill shortages have occurred and doubtless will continue to occur. Even the Soviet Union, with its massive planning

capability, has difficulties in this regard. For example, Kruschev told a conference in 1959 that:

> "we do not have any scientifically reliable method of estimating how many and what kind of specialists we need in different branches of the national economy, what the future demand will be for a certain kind of specialist and when such a demand will arise."[2]

If that is the situation in the Soviet Union, then it must be the case, that permanent disequilibrium is a fundamental characteristic of all except the most stagnant social formations and that where social labour is allocated by the law of value an equivalence of the demand for and supply of specific categories of labour power is simply a freak occurrence. This is confirmed by reports from the dominant capitalist social formations, where, for example, shortages of skilled manual workers are regularly reported.

The South African problem then is one of degree, not of kind and more specifically is concerned with the alleged impediments to the adjustment processes flowing from the disequilibria discussed above. The question thus remains, does the actual skill shortage merit the massive attention it receives?

This is exceedingly difficult to answer and can only be approached circuitously - one could for example enquire as to who would benefit from the blockage of conventional adjustment mechanisms[3] and the first and most obvious answer is of course - organised labour, in particular, the members of craft unions. By maintaining artificial scarcity, this group can extract monopoly rentals. However, such a strategy involves the risk in many cases of being outflanked - the old saw about no-one being indispensable contains more than a grain of truth. At any event, it is significant that craft unions often vehemently deny the claim that skill shortages exist.

The next group who stand to gain from a blockage of the process by which supply and demand are brought into something near equality, is the racist state - the payoff being grateful voters. A great deal of ink has been spilt over this topic - possibly the most interesting question now in the state/white worker relationship is that concerning the reasons why the state is accused of 'abandoning' those workers whom it so assiduously sought to protect in former times? Further comment on this interesting turnabout will be held until later in the article.

Capital, paradoxically, is the other group likely to profit from a 'skill shortage', especially if, as is suspected, many of the so-called shortages have been either exaggerated or largely imaginary.

There are several ways in which this may work, for example, capital subscribes enthusiastically with organised labour to the myth of 'rising skills' and in this way is able to ensure widespread application of the Babbage principle. The process known as 'floating the colour bar' is generally argued to be one in which whites are 'bought-off' and blacks are brought in to perform fragmented or diluted portions of the job previously performed by whites - the obvious implication being that if sufficient skilled workers had been available, this process would not have occurred.

A moment's reflection suggests that this line of reasoning is naive - capitalist technology has succeeded in reducing many skilled occupations to a mere shell - the difficulty often is to get rid of the refractory 'skilled' workers occupying such positions.[4] Sweeteners, in the form of generous redundancy payments or guaranteed sinecures such as those which followed the introduction of electronic editing into the newspaper industry, or the availability to skilled manual workers of abundant alternate employment e.g. as technical sales personnel, help to drive away unwanted 'skilled workers' and help to accomplish in the twinkling of an eye that which capital has had to struggle bitterly to achieve in other countries.[5]

Another reason for actively fostering the ideology of rising skills is the degree of control possible through the maintenance of a strongly hierarchically structured labour force. This ploy effectively neutralizes the obvious political dangers which would result from workers having a clearer perception of class identity.

Yet another aspect of bourgeois divide and rule technology made possible by a fostering of the notions of skill shortages and rising demands for skills is the almost universal advocacy of education as a panacea, a cure-all for the woes of the working class.[6]

Although South Africa possibly does not yet suffer to the same degree from the problem noted by Ivor Berg[7] in the USA, namely that education may become a liability, because work performance is in many instances inversely related to educational achievement, the research results of a number of workers suggest that lack of formal education is NOT a significant barrier to job advancement, even amongst Africans.[8]

It is fashionable nowadays to talk of upward mobility of black and particularly of African workers, as a solution to the acute shortages the economy allegedly faces, therefore, it is instructive to examine the details of some of the training schemes to which these alleged shortages give rise.

A 'new plan', reportedly to train mature workers and returning national servicemen was launched in 1979 by SEIFSA, one of the largest employer organisations in the

country. A leading SEIFA spokesman allegedly explained that the scheme was designed to cater for skill shortages in some trades which would be worsened by the expected upturn in the industry and was quoted as saying that:

> "we don't want to import immigrant labour and we see this as a way of using SA resources to the full."[9]

When it was suggested that this new scheme opened a possible avenue for the training of Africans as artisans, he is reported to have ruled this out, commenting that:

> "trainees will have to have a certain educational level which the vast majority of blacks don't have."[10]

According to the report, a pilot scheme for training plater/boilermakers was mooted. Entry qualification for this trade is a Std. VII school certificate. A study on African unemployment conducted in 1977[11] showed 16.4 per cent of the urban male unemployed and 11,2 per cent of the rural male unemployed had passed Std. VIII or higher, whilst more than a further 40 per cent of each group had 7-9 years of schooling. The 'vast majority of blacks' do not need to be 'educated'[12] to fill a few vacancies in the engineering industry and the fact that SIEFSA did not know this casts serious doubts on their pronouncements in areas where knowledge is less readily obtainable,e.g. on the magnitude of skill shortages.

More interesting perhaps is the snail-like progress of blacks into apprenticeships since the Wiehahn reforms. The numbers admitted so far, for whatever reason, are trivial. Whether this is the result of white union resistance on the apprenticeship committees as suggested by various commentators is not known. Certainly one possibility which is very seldom aired is simple reluctance on the part of capital in general to train. Of course, the new generous allowances instituted as a further part of the Wiehahn reforms may have the desired effect, but it is remarkable that the costs of producing compound labour-power had to be completely socialised before capital was prepared to train artisans with any marked enthusiasm. It is a great pity that this coincides with the lifting of a race barrier as the separation out of the two effects now becomes impossible and 'reform capital' adds yet another feather to its cap.

Thus, it may be seen that for capital, the benefits of 'skill shortages' are manifold - in addition to the strong likelihood of reduced costs, the maintenance of the ideology of skills is essential to the continued reproduction of the class system - a task in which they are ably if unwittingly, assisted by white workers.[13]

As stated in the introduction, one purpose of this article is to explore the validity of the skill shortage argument. Two sources of such arguments namely capital and the state, were identified and an attempt was made to explain why the topic merited so much attention.

Because of the absence of hard data, most analyses of skill shortages tend to be future-oriented in the sense that they speculate about potential consequences rather than attempt to analyse the past. The startling contrast to this convention was the recent use by a Marxist analyst, of skill shortages as an important explanatory variable of the most recent economic crisis.

In contrast to the *ad hoc* nature of most comments on skill shortage, the article referred to above, by Robert Davies [14] attempted to locate the problem within the contest of recent developments in the South African social formation.

It is convenient to use the Davies article as a platform from which to launch a critique on the ideology of skill shortage and it must be said at the outset that whereas his political and ideological analyses are both perceptive and useful, his attempt to ground his analysis of crisis firmly in the economic, contains many untested and possibly untestable propositions which weaken his argument.

Davies argues that in the face of shortages of certain categories of labour power in the circulation process in the boom periods of the sixties and early seventies, production levels and hence the rate of capital accumulation, were in part, maintained by the use of :

> "larger than average amounts of money capital" from the "abundance of foreign investment seeking a share in the profits of the super-exploitation of black labour."[15]

These shortages are said to have produced a tendency for capital to spend a longer than average time, unproductively employed in the circulation process.[16] In the then prevailing circumstances, 'gentle floating' of the colour bar was possible and the bourgeoisie had no need to engage in serious class struggle to bring about a restructuring of the racial division of labour.

Changed conditions in the mid-seventies, in particular diminished profitability and political unrest, coupled with reduced flows of investment funds, in combination with the increasing cost of floating the colour bar, have, it is argued:

> "produced the imperatives for capital to seek a modification in the racial division of labour and the removal of job colour bar legislation."[17]

Furthermore, this crisis of profitability cannot be resolved by raising the rate of exploitation of the

working class through the lowering of wages or by increasing the length of the working day and, therefore capital, he continues, is forced to restructure production at a higher organic composition. This however:

> "must necessarily involve the inescapable combination of further structural unemployment and the further deskilling and subordination of manual labour on the one hand and the creation of an increased number of specialist and mental places, on the other."[18]

But instead of easing the problem, raising the organic composition of capital will simply exacerbate the shortages which were part of the cause of the crisis in the first instance - unless capital can force a restructuring of the racial division of labour. Thus, according to Davies, capital has no alternative other than to engage in serious class warfare.

Unfortunately, the evidence offered to support these bold assertions is an equally bold and sweeping set of generalizations culled from very partisan sources. For example, in discussing the increasing costs of 'floating the colour bar' in the mid-seventies, Davies quotes the Vice-President of the Federated Chamber of Industries as saying in 1976 that:

> "present policy was forcing employers to pay unrealistic and artificial premium wages thereby increasing, instead of reducing costs."[19]

It would be strange if capital did not complain about rising wage costs, however, the *Census of Manufacturing, 1976* shows that between 1972 and 1976, labour costs as a percentage of total costs fell in nineteen of twenty-seven major groups (industries) in the manufacturing sector, and in five of the industries in which labour costs rose, the rate of net profit rose as well. In the manufacturing sector, average salaries and wages grew at the rate of 14,07 per cent per annum over the period, whereas net output per employee grew at 15,26 per cent and net profit at the rate of 26,63 per cent per annum. However, material costs over the same period rose at the rate of 23,27 per cent per annum so it is clear that capital was up to its usual trick of applying pressure in the only place they could i.e. on the workers. With inflation averaging 11.4 per cent per annum at the time, the modest gains made by workers - [20] most of them from a pitifully low base - give the lie to F.C.I. propaganda.

Public statements need to be treated with great caution, because very often what one is looking at is not an analysis of objective conditions which may lead to social change, but rather some aspect or other of bourgeois ideology. Examination of the disjunction between the two is

an important exercise. Marx himself was not immune to the danger of accepting uncritically, the claims of various capitalist 'authorities'. In a recent article on the capitalist labour process, Lazonick argues that Marx occasionally underestimated the importance of the material conditions of class struggle over innovation and concluded that:

> "a useful theoretical framework will not yield useful conclusions when it serves as a substitute for, rather than a guide to, empirical analysis."[21]

With this important stricture in mind, and, bearing in mind the twofold purpose of this article i.e. to evaluate conventional 'skill shortage' estimates and to develop a critique of Davies' methodology, it is proposed to examine his hypothesis, that in addition to shortages of technicians, supervisors and artisans which affected the production process, circulation has taken place at less than average efficiency because of:

> "shortages of clerical, administrative, sales and other staff engaged in the unproductive but necessary task of realizing surplus value."[22]

Apart from internal reports, usually unpublished, compiled by worker and capitalist organisations, three methods of discovering skill shortages are generally used in South Africa. The first is the set of *Manpower Surveys* published by the Department of Manpower Utilization (formerly Labour); the second is the method of international comparison and, the third is the method of manpower supply and demand projection.

Davies presents results from all three sources and then states that:

> "although all of these calculations do have defects, they do at least indicate in a general way:
>
> (a) that South African capitalism has been experiencing a shortage of skilled labour power since at least the mid-sixties;
>
> (b) that these shortages have persisted despite the current recession ....
>
> (c) that given the continued reproduction of the racist hierarchical division of labour in its present form, they are likely to continue to persist into the forseeable future."[23]

He claims that figures given by the Minister of Labour for April 1977 show:

> "shortages of 99 000 (1,9 per cent) continuing to exist in the professional, semi-professional and technical grades despite the recession."[24]

This presumably refers to the *Manpower Survey No. 12, All Industries and Occupations,29 April 1977* published by the Department of Labour, which shows that there were 99 260 vacancies in a total workforce (agricultural and domestic workers excluded) of 5 289 415. However, of these 99 260 vacancies, only 18 126 were in the occupational group 'Professional, Semi-Professional and Technical', and of these 18 126 vacancies, 9 858 were for medical doctors, nurses, trainee nurses and teachers.

Total shortage figures for each occupation are not very useful - of far greater significance are the occupational structures and patterns of vacancies for the economy, by sector groups or departments. Table 1 gives this information for workers of all races in occupational categories, 01 to 04, i.e. Professional, Semi-Professional and Technical; Managerial, Executive and Administrative; Clerical; Sales and Related.

There is no yardstick by which to gauge the seriousness of a particular labour shortage, one is thus reduced to expressing opinions. With one or two exceptions, the shortage or 'vacancies' reflected in Table 1 do not appear to be serious. In most cases, they are low in percentage (and in absolute) terms. What is more, the pattern of vacancies conforms to the different levels of activity in the different branches of the economy at the time, for not all sectors of the economy were equally depressed.

Shortages of varying degrees of seriousness were reported in most of the public services and in the Basic Metal industry, which is dominated by Iscor[25], a public (state) corporation. Whether these shortages were real or simply the reflection of divergence from some 'notional establishment level' is not known, the latter, seems more likely. Mining was expanding rapidly, hence the vacancies for professional semi-professional and technical workers.[26]

A similar exercise, carried out for artisans also suggests that the much vaunted shortage which has "persisted despite the current recession" was in all probability, notional only. In fact, the reported shortages of building workers in the Wiehahn report which quoted the same sources as above, coincided with massive unemployment, far outweighing reported vacancies - exactly what one would expect during a crisis![27]

For conventional researchers these results are awkward, but for Davies they are doubly so, because his project is much more ambitious - recall that he needs to demonstrate the existence of a shortage of unproductive workers in the sphere or circulation. Use of official sources referred

to previously rather than newspaper reports, would have permitted Davies to discount his claims by the percentage of doctors, nurses, teachers and others present. Such a procedure is also likely to have compelled him to identify the spheres of production and circulation far more rigorously and in particular, he would have had to look closely at the distinction between productive and unproductive labour. The difficulties involved in this exercise are considerable. Not only of course, are there productive and unproductive spheres of the economy (productive or unproductive of value and surplus value that is), but there are also productive and unproductive workers within the productive sphere. (see Appendix)

Even if it were shown that there were shortages of workers in the International Standard Classification of Occupations, 0, 1, 2 and 3 (Manpower Survey Occupational Groups 01, 02, 03 and 04)[28] given the quality of the existing data, it cannot be shown that the shortages were located in the realm of circulation. Furthermore, where shortages are known to exist in this realm, they cannot in general be shown to be serious.

Given the paucity of published data on the distribution of vacancies prior to 1977, it is impossible to say, with any precision, which sectors of the South African economy have been plagued by shortages of 'clerical, administrative, sales and other staff'. It is thus not possible, at least in the case of the clerical and administrative workers, to show that significant shortages of 'unproductive' workers have existed.

INTERNATIONAL COMPARISON

A popular way, especially with bourgeois analysts, of attemtping to demonstrate the existence of shortages of skilled labour-power as a constraint on accumulation, is the method of international comparison of occupational structures. No amount of dodging behind academic caveats can obscure the likelihood that comparisons at high levels of aggregation are for the most part simply misleading.

Essentially, Davies' approach is to suggest that the distribution of occupations in the different capitalist countries tends to norms which are in some way related to their state of development. Thus, he argues that South Africa was:

> "roughly on a par with the norms established in international capitalist competition for the so-called middle level industrialised countries."[29]

and that a drift of 1,5 per cent from a norm of 18 - 20 per cent (note that the 'drift' is smaller than the range of values) of the economically active population in occupational groups 01 - 04, over a period of 10 years or so, is evidence of shortage of these workers.

There are several problems here. Firstly, there is the problem discussed above, which results from attempting to apply bourgeois statistics to the Marxism categories of productive and unproductive labour. Because of the 'coarseness' which results from the aggregation of international labour statistics, it is impossible to say anything meaningful about the distribution of workers in the different spheres of the various economies.

More important than this though, is the totally unwarranted use of the assumption that 'international capitalist competition' is capable of altering basic structural characteristics of highly differentiated social formations in some short space of time. Even developed capitalist economies exhibit striking differences in occupational structures. If one mixes in the odd colony or so, the international comparisons that can be constructed are highly instructive. Consider Table 2. Was Japan seriously short of Professional, Semi-Professional and Technical workers in 1970? By comparison with Denmark it would certainly appear so. Did Denmark have an acute shortage of Managers, Administrators and Executives in 1970? By comparison with Japan it seems as though they did - by comparison with Puerto Rico it seems almost impossible that they did not! This sort of analysis is clearly unsound.

In any event, instead of comparing South Africa with Western Europe and North America, as is sometimes done, he suggests that comparison with the so-called middle-level industrialized countries referred to earlier might be "more valid."[30]

He may well be correct, but his choice of countries to make the point is somewhat unfortunate. Differences in structural variables between them assume an importance which cannot be ignored. Tables 3 and 4 give values for some of these variables, for two of the countries selected by Davies.

With such large differences in the relative sizes of the different branches of economic activity, within and between which occupational distributions are likely to differ significantly and with such different GNP's, population growth rates and such vastly different per capita incomes, it is difficult to see why it should be thought that there is any tendency to some norm or other.

Mining in South Africa offers an object lesson in this regard. The industry employes nearly 15 times more workers than does the same activity in Argentina and 38 times more than in Egypt.[31]

Of the 656 287 workers employed in mining in South Africa in 1977, a mere 34 546 or 5,3 per cent[32] were employed in occupational categories 01 - 04. South African coalmines had a workforce of 91 535 in 1977, of whom only 2 333 were in categories 01 - 04.[33] Yet, South African coalminers produce more than twice as much coal per man shift underground than do the West German miners.[34] If large sectors

of the South African economy look like this, what happens to the 'international norms'? They should be consigned to the scrapheap, along with several other propositions which have been invalidated by the passing on of perfect competition.

MANPOWER PROJECTION

Manpower projections are good clean fun and relatively harmless, as long as they are not taken too seriously. Apart from anything else, the data bases upon which such estimates are made often contain inconsistencies. Even when good data is available and sophisticated techniques are used, success is by no means assured. The literature is replete with wildly inaccurate forecasts.[35]

Davies hoped to show or at least to suggest, that capital believes that unless the 'racist hierarchial division of labour' is changed, shortages of certain categories of skilled labour power will "persist into the foreseeable future."[36] To achieve this, he used, amongst other things, a calculation made by Parsons of the Chamber of Mines, which has:

> "referred to a demand for 2 796 000 white colour (presumably collar?) employees by 1990 assuming a 5 per cent rate of growth. Comparing this with an estimated 1 348 000 whites available to fill these places, this indicates a shortage of 1 448 000 unfilled white collar places unless they are turned over to persons of other races."[37]

Once again, because Davies has apparently relied on second-hand material, the picture he presents is somewhat misleading. Parsons' estimate[38] actually looks like this:

For the year 1990

Projected economically active population	13 910 000
Projected proportion of population in groups 01-04	20,1%
Projected number of workers in groups 01-04	2 796 000
Demand for whites, *assuming* they continue to make up 67,3% of this group	1 882 000
Supply of whites, *assuming* that whites in this group continue to comprise 57,8% of the white economically active population	1 348 000
SHORTAGE	534 000

The predicted shortage depends crucially on the two assumptions in italics above. Are the assumptions reasonable? Parsons justifies the first assumption on the following grounds. He says that:

> "If Whites continued to comprise 67,3 per cent of this occupational category as they did in 1970, this already implies an expansion in the number of qualified non-whites to fill the remaining one-third of this rapidly expanding group."[39]

The second assumption is justified on the grounds that the 57,8 per cent of economically active whites in 'white collar' jobs is already much greater than the 48,3 per cent of Americans in similar occupations in 1970 - thus it is concluded that further increases in the percentage of whites in these categories would seriously affect the 'quality' of white-collar workers.

> "The majority of 'white-collar' jobs, the highest skill category" according to Parsons "would therefore need to be filled by non-whites."[40]

If education is used as a surrogate for 'quality', then this putative limit, once again suggesting a 'norm' to which social formations gravitate, appears dubious, to say the least. In Table 5 are shown the educational profiles for whites in 1970.

Of the workers in occupational categories 01 - 04, fourteen percent were people with Standard 7 or less and a further 30,2 per cent had only Standard 8 or 9. Are they among the "highest skill category" of workers? According to the population census in 1970, there were 1 295 288[41] white-collar workers in the South African economy. The median educational level of the black 'white-collar' workers was much lower than that of the whites.[42] In view of this, it does seem questionable at least, to argue that the proportion of whites in white-collar occupations could not rise without lowering quality.

In 1970, there were 159 084 white women educated to Standard 10, 42 046 with Standard 10 plus diploma and 14 702 with degrees, who were not economically active. Given different circumstances, their participation rates could[43] and did[44] rise. Also, white employment in the occupational category 'production workers', decreased absolutely between 1969 and 1977.[45] Of these workers classified by the 1970 Census as production workers, at least 200 000 appear to be eligible by educational qualification, if not by disposition, to perform 'white-collar' tasks.

If one drops Parsons' assumed proportions and replaces them with figures which appear to accord with observed experience over the years 1969 to 1977, then the projected

shortage of whites in occupational categories 01 - 04 turns into a surplus. This conclusion is strengthened by the estimate of a white unemployment rate as high as 4.0 per cent in 1987, made in the latest Economic Development Programme, [46] even on the assumption of a sustained growth rate of 4,5 per cent per annum and, it is further questioned by the Human Sciences Research Council prediction of an excess supply of persons educated to Standard 8, 9 or 10 of nearly 200 000 by this year (1981).[47]

On the basis of the foregoing analyses, it is submitted that the 'defects' in the calculations to which Davies refers, are so serious as to prevent his being able to establish, even in a 'general way', that the specific shortages of labour-power in which he is interested, have existed or may exist. His argument is thus left hanging in mid-air.

Digressing for a while from the question of skill shortages, there are several other issues raised by his article which call for comment. For instance, it was noted above that Davies claimed that:

> "the crisis of profitability has forced the capitalist class in South Africa to attempt to restructure capitalist production at a higher organic composition of capital."[48]

This, it was argued, took place because the other methods of increasing exploitation were not possible.

It is common cause that 'capital intensity', sometimes interpreted as the aggregate capital/labour ratio in the South African economy, has risen in recent years, and concern is frequently expressed at this development.

Presumably, the only surrogate source of information on the organic composition of capital open to Davies, is that available to everyone else, namely aggregate capital/labour ratios. These ratios are more interesting for what they conceal than what they reveal. However, it is possible to use the existing data, its shortcomings notwithstanding, to cast a little light on the matter.

Table 6 shows changes in the current(rand) value of plant, machinery and equipment per man in selected mining and manufacturing activities, the most likely sites of struggle for control over the labour process.

Problems of capital valuation [49] are too well known to be discussed here - mention will simply be made of the extreme sensitivity of capital values to assumptions about depreciation, the difficulties associated with inflation and the difficulty of estimating the value of rented equipment.

Over the period in question, the price of plant, machinery and equipment, much of which is imported, probably

grew at the rate of about 8 or 9 per cent per annum, the most rapid growth taking place in the latter half of the period. Ignoring the problem of the different vintages of capital goods, this figure approaches the average growth rate for capital/man in both Mining and Manufacturing. Of more interest, though, are the patterns of structural change within these two major divisions.

In Manufacturing, Basic Metals and Chemicals, whilst providing only 12,2 per cent of employment at the beginning of the period, used 26,9 per cent of all plant, machinery and equipment.

By 1976, these two industries provided 14,6 per cent of employment, but used 47,9 per cent of the plant in existence. This is obviously accounted for by the activities of Iscor, Sasol and the large investments by the private sector in steel and chemicals. Whether this splurge of investment can be attributed to the impossibility of using:

> "Alternative methods of increasing the exploitation of the working class - such as increasing the length of the working day, increasing the intensity of labour, or reducing the absolute level of wages ...."[50]

as a means of raising profitability is much to be doubted. Rates of growth of K/L ratios in the other industries do not appear to suggest that capital intensity is growing at an alarming rate.

The picture is somewhat different in Mining, where employment fell over the period and capital intensity, as measured by the capital/labour ratio appears to have risen substantially in coal and 'other' mining.

It may well be the case that class struggle has forced the coal mine owners to restructure capital at a higher organic composition. Certainly, wage costs per ton of coal produced have risen sharply[51] - however, it appears that mechanisation has led to a more than proportionate increase in gross surplus.[52] At the new higher wage levels, massive investment programmes have been undertaken, mainly to supply the rapidly growing demands of the major consumer of coal, Escom[53], the electricity generating authority, and to sell on world markets.

'Other mining' is dominated by Iron, Chrome, Copper, Manganese and Vanadium. Output has in general doubled or trebled and in the case of Vanadium, increased sixfold in the period from 1966 to 1976.[54] Many of the mines involved are entirely new ventures - in these days of rapidly rising producer good prices it is not surprising that capital/labour ratios are reported to be rising.

Readers do not need to be reminded that rising capital/labour ratios are not the same as a rising organic composition of capital. There is, to the author's knowledge, no

study in value terms, which shows that the organic composition of capital has risen in recent years. Even if it has, it is by no means sure what the consequences for the rate of profit would be. Given that there exist significant monopoly elements within the South African economy and, in many cases, strong barriers against international competition, coupled with active state intervention in price determination, it is at least conceivable that price and value could diverge and what is more, stay that way for long periods. Detailed studies of crisis and of price/value relations are an absolute essential before confident generalisations about 'restructuring at a higher level of organic composition' can be made.

A corollary of the rising organic composition of capital is claimed to be:

> "further structural unemployment and the further deskilling and subordination of manual labour ...."[55]

The first half of the latter statement might well be true but the second implies so crude and mechanistic a view of the labour process, that it hardly merits attention. Where, one might ask in passing, are the studies which show that the mass of manual workers in South Africa has become deskilled as accumulation has proceeded? As Elger points out:

> "it is necessary to advance beyond ... the spurious concreteness of the generic impulse towards deskilling ... "[56]

To ignore the potential for enhanced worker power amongst 'new' workers, who presumably enter the market for labour-power without any industrial skills whatever, to ignore the possible gains in strength of the new collective workers, it is to ignore the ever-present contradictions of capital and to assert that real domination can be achieved by restructuring the labour process. There is a strong tension between this observation on 'further subordination', and Davies' quite correct observations earlier on that the level of class struggle in the workplace is rising.

Yet another area in which traces of mechanistic thinking is evidenced is in the relationship between demographic trends and labour-power requirements for the reproduction of capital. Davies claims that:

> "in the period since the mid-sixties at least, the extended reproduction of monopoly capitalist relations has proceeded at a rate in excess of the rate of growth of the white population;"[57]

This circumstance, in conjunction with other factors, it is argued, had led to shortages of certain categories of workers.

What this statement actually does is to take a perfectly comprehensible occurrence, i.e. the fact that the demand for workers in positions 'normally' occupied by Whites in the South African social formation as a whole, has grown faster than the supply, and succeeded in rendering it totally obscure.

There is no *a priori* reason why the extended reproduction of monopoly capitalist relations of production should bear any, but the most tenuous relationship with the rate of growth of the white population. Changing participation rates alone are enough to break the link.

The concept of monopoly capital is fairly elastic and whilst it is likely that concentration and centralization have proceeded apace, this process coincides with vast expansion of competitive capital. It is by no means impossible that the centralization of capital may produce economies of scale in the use of skilled labour-power and that this process could balance out the growing demand due to rapid accumulation. Small businesses probably do not enjoy economies of scale in the use of white-collar workers and thus are likely to require proportionately more of these workers. To the extent that small businesses mushroomed during the period[58] the relationship between the reproduction of monopoly capitalist relations and the rate of growth of the white population becomes even more tenuous.

Finally, a comment on the Davies attempt to relate changes in occupational structures to foreign capital movements.

He claims that the imperative for restructuring the racial divison of labour emerged after the 1976/77 flight of capital from South Africa. To demonstrate this, he quotes *total* long term foreign investments, *total* net capital inflows and *short-term* private sector capital movements for the years 1974/75 to 1976/77, which show a substantial reduction in the two former categories and an outflow in the latter and he concludes that:

> "the mitigating effects in respect of the shortages of labour power in the circulation process previously provided by the large amounts of foreign investment capital could no longer apply".[59]

Whilst it is true that foreign capital inflows diminished markedly, it is far from clear what the implications are of this for the 'mitigating effects' thesis. It seems unlikely that anything less than a *detailed* examination of these flows, particularly of private capital movements, will serve to establish his hypothesis.

In any event, the upper turning point of the business cycle was located in the third quarter of 1974[60], whilst

relatively large inflows of capital continued through 1975/76. Also, long term non-direct private foreign liabilities continued to increase through to 1977.[61] By the time the decrease in private investment funds became noticeable, the shortages of labour-power which they are argued to have been mitigating, probably did not exist.[62] Balance-of-payments data is notoriously difficult to interpret, possibly more so in a period when the relative magnitudes of the different components of the external accounts are changing rapidly.[63] Consider for example, this statement:

> A substantial net outflow of capital of R872 million occurred during the third quarter, bringing the total net outflow during the first nine months of 1979 to R2 229 million.[64]

Viewed in isolation, this sounds quite alarming. Closer examination, however, reveals that it (the outflow) was related to the repayment of short-term foreign loans. Foreign interest rates had risen and the margin between the effective cost of trade financing had widened, hence the repayments. The point to be noted here is that the bare figures for any one or even possibly a few years, can be misleading.

If one restricts one's view to private sector transactions, then it could be argued that the significant variables for the mitigation thesis are either net changes in foreign liabilities or total net private capital movements and the proportion of net domestic fixed investment which these represent.

Long term direct investments (net change in private liabilities) over the period 1963 to 1976 show a slow upward trend, which when deflated becomes a very slow upward trend. Non-direct investment, apart from one large leap in 1975, does likewise. Stock exchange transactions are interesting but do not appear to be highly significant in a quantitative sense. Changes in short-term capital movements are closely related to changes in the level of merchandise imports and, therefore, far less clearly related to the issue of 'mitigation'. The net increase in private foreign liabilities over assets during the period was R2 375 million, whilst net domestic fixed investment by private businesses amounted to R15 851 million. The percentage of investment accounted for by increases in foreign liabilities each year was extremely erratic - the changes show a slight upward trend but the variations increase in intensity. The hypothesis that capital relied on 'abundant' infusions of foreign investment to mitigate shortages, does not obtain much support from these figures.[65]

The really important change which took place in the structure of South Africa's foreign liabilities is not referred to at all by Davies - this change was the increasing reliance, through the seventies, on overseas

borrowing as a means of financing public sector expenditure. Central Government and Banking Sector liabilities increased by more than R2 000 million over the period 1970 to 1976, whilst Public Corporation and Local Authorities increased their indebtedness by more than R2 700 million.[66] The reasons for this development relate mainly to the rapid growth of this sector and its declining ability to self-finance its consumption and investment expenditure. Persistent deficits in the balance-of-payments, in which the importation of producer goods for the highly capital intensive public sector industries appears to have played an important role, were financed by foreign borrowing.[67] Thus, before the recent rises in the gold price, fears of a drying-up of overseas loans leading to competition between the public and private sectors, for scarce funds, were probably quite real. In addition to this, it has been shown that in spite of a reluctance on government's part to further burden the private sector, the tax pressure on private business increased significantly during the period 1970-77,[68] thus diminishing this sector's ability to finance its own investment. These factors, coupled with increasing capital intensity in both the public sector and in certain parts of the private sector, which increases still further, the need to borrow, are what lay behind the alarm at the prospect of overseas funds no longer being available on reasonable terms.

These complex processes cannot be boiled down to a few simplistic assertions about mitigation. It is clear that to sustain any claims about abundant inflows permitting inefficient circulation, would require careful and precise analysis of these flows.

Comment has already been made on the question of increasing capital intensity - the other obvious factor requiring explanation is the growing public sector involvement.[69] Although the rapid rate of growth of public sector employment in the past is clearly relevant to the issue of 'shortages' of workers in occupational categories 01 to 03[70], an explanation of this tendency will not be attempted here. What precisely are the relations between the state and the sphere of commodity circulation? What if the shortages of unproductive workers (if it existed) was confined to the state? These are questions which must at some stage be addressed.

One may remark in passing that a very considerable impetus to changing the present allocation of economic activity stems, as a component of the "total strategy", from the state itself.The phenomenon is widely reported and the corresponding clamour from 'private enterprise' for government to disengage still further, shows no sign

of abating. In view of the perceived change in the attitude of the state towards certain sections of the white work-force, notably the miners, it seems at least possible that capital only now considers class warfare worth their while.

It is surely more than mere coincidence that capital's new assertiveness appeared precisely at the time when the state adopted a strongly 'pro-free enterprise' stance - a stance which appears to be at one with international capital's 'monetarist' posturing, as an attempted solution to the continuing crisis?

In any event, because of the new alliance between the state and capital, capital may believe that the objective conditions of class struggle have altered in their favour. As was suggested earlier, it is difficult to avoid the suspicion that 'skill shortages' form part of a convenient smoke screen from behind the cover of which they can push for the creation of the black petty bourgeoisie, that both they and the state urgently require. A task of the first order of importance therefore is to separate out the rhetoric from the reality of capitalist practise as far as 'training' is concerned. Despite their much vaunted concern in this area under the banner of 'black advancement', the real changes are minimal thus far and a possible explanation for this is precisely that capital constantly exaggerates the extent of its demand for skilled labour/power.

CONCLUSION

There is the distinct danger inherent in the approach adopted in this article i.e. the requirement of rigorous demonstration of the validity of each assertion, that it may demand of the progressive researcher, as Stedman Jones puts it:

> (that he waste) "too much time attempting to convert heuristic concepts into the type of intellectual statements that would be permissible within a liberal positivist framework"[71]

If the received theory were settled beyond dispute, the arguments offered above would be merely querulous. However, it is not true for example that the rising organic composition of capital/falling rate of profit - crisis theorists hold undisputed sway[72] nor have Braverman or the Brighton Labour Process Group spoken the last word on the CLP (both saw their studies as a beginning!)

Therefore, one feels justified in calling for the evidence. Whilst it cannot be denied that specific shortages of skilled labour-power have acted as serious constraints on accumulation and will doubtless continue to do so both here and in the dominant capitalist social formations, it is probably also true to say that these same shortages can be highly functional to both the state and capital. On the one hand, they encourage the active fostering of the myth of upward mobility, whilst permitting 'rationalisation' of the labour process on the other.

Failure to use critically the insights flowing from the intense and lively debates on the theoretical issues raised by Davies' article, no less than failure to make the best use of existing data, bourgeois or not, can only lead to faulty analysis of these trends.

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Table 1 Employment (N) and Percentage Vacancies (V/N%) by Sector of Employment, Occupational Groups 01-04, April, 1977

Occupation / Sector	Professional and Semi-Professional 01		Administrative 02		Clerical 03		Sales 04		All (01-41)
	N	V/N%	N	V/N%	N	V/N%	N	V/N%	N
Mining	3 815	3,6	2 668	0,8	27 765	0,3	298	3,0	656 287
Manufacturing (excluding Basic Metal)	32 000	1,8	25 641	0,4	108 531	0,6	21 855	0,7	1 221 026
Basic Metal	4 577	6,1	1 490	1,9	12 607	0,9	387	1,3	261 094
Electricity, Gas & Water	3 355	3,2	1 454	0,8	4 517	0,9	22	0,0	72 769
Building and Construction	8 632	0,4	5 538	0,0	16 075	0,0	1 207	0,0	436 849
Trade	17 807	0,7	50 260	0,2	147 498	0,3	191 039	0,3	744 608
Transport and Communication	22 351	0,8	10 914	0,6	53 664	0,3	1 419	0,6	453 967
Financial Organisations	3 270	2,7	14 296	0,1	85 834	0,2	11 240	5,0	132 928
Miscellaneous Services	89 620	5,3	16 505	2,9	68 129	1,1	14 444	0,1	467 391
Public Services	255 745	4,6	14 464	5,4	82 486	4,0	343	7,0	842 391
TOTALS	441 172	4,1	143 230	1,1	607 106	1,0	242 254	0,7	5 289 410

Sources: Manpower Survey No.12, 29 April 1977 Sector Groups, and Manpower Survey No.12, 29 April 1977, All Industries and Occupations, both published by Department of Labour, Pretoria.

Note: Vacancies in the latter survey represent raised totals for each occupation, whereas in the former, actual sample values are given. Samples in Mining and in the Public Sector are reported to be close to 100%. The remaining shortages in the other sectors have been raised on the assumption that they are evenly distributed. A Department of Manpower Utilisation (formerly Labour) spokesman confirmed that this would not produce significant errors.

Table 2 Percentage of Economically Active Population in Occupational Categories 01 to 04. Various Countries

Occupational Category	Japan		Puerto Pico		Denmark	
	1970	1977	1973	1977	1965	1970
01	6,7	7,1	9,6	11,0	9,5	12,2
02	3,8	3,9	8,5	9,0	1,6	1,6
03	14,6	15,6	10,9	11,5	10,5	12,9
04	11,5	14,3	6,9	7,5	10,1	9,6

Source: Yearbook of Labour Statistics, various years. International Labour Office, Geneva.

Table 3 Structure of Economically Active Population

	Egypt (1966)	South Africa (1970)	Argentina (1970)
1. Agriculture	53,3	28,0	14,8
2. Mining & Quarrying	0,2	8,5	0,5
3. Manufacturing	12,9	12,8	19,7
4. Total Economically Active	8 333 733	7 986 220	9 011 450
5. Percentage Economically Active	27,9	37,3	38,5

Source: Yearbook of Labour Statistics, 1977. International Labour Office, Geneva.

Note: Figures in Rows 1, 2 and 3 represent percentages of economically active population in the particular activities.

Table 4 Selected Economic Development Indicators - Average Annual Real Growth Rates (%) 1965 - 1973 and Per Capita GNP, 1970

	Egypt	South Africa	Argentina
Population Growth Rate	2,5	3,2	1,5
GDP Growth Rate	3,3	5,2	4,5
Per Capita GNP (US $ 1970)	181	727	976

Source: World Tables 1976, for the World Bank, by John Hopkins University Press, Baltimore and London, 1976

Table 5 Educational Level of White Males and Females - 1970

Group	SEX	Total Number of Persons	Percentage in each Educational Class			
			Std. 7 or Less	Std. 8 9. or Diploma	Std. 10	Post Secondary
All Economically Active	M	1 060 919	29,8	31,2	25,1	13,9
	F	447 983	20,4	39,0	26,9	13,7
All non-Economically Active	M	820 894	85,5	8,6	4,9	1,0
	F	1 443 486	64,5	20,5	11,0	3,9
Total in Occupational Categories 01-04	M	487 585	13,2	25,5	35,1	26,2
	F	384 234	14,9	40,3	29,4	15,3

Source: Population Census 1970 - Occupations, Report No. 02-05-11, Table A.3, Department of Statistics.

Table 6 Changes in the R Value of Machinery per Man in the Manufacturing Sector (Selected Industries), 1965/66 - 1976 and in Mining 1966 - 1975.

Year, K/L, %K & %L / Industry		Total Manufacturing	Food	Textiles	Clothing	Paper	Chemicals	Basic Metal	Metal Products	Transport Equipment	Total Mining	Gold	Coal	Other*
1965/66 (Manufacturing)	K/L	1 169	1 108	922	212	2 505	2 010	3 080	680	841	1 245	1 406	705	1 246
1966 (Mining)	%K	100	11,8	5,8	2,1	6,4	9,8	17,1	6,2	4,5	100	75,7	7,3	16,7
	%L	100	12,5	7,4	11,6	3,0	5,7	6,5	10,7	6,2	100	67,1	12,9	16,7
1970	K/L	1 562	1 464	1 062	236	2 427	3 319	4 848	743	1 087	1 531	1 680	977	1 572
	%K	100	11,1	5,4	1,7	4,2	11,7	20,9	4,9	5,3	100	70,9	7,2	21,4
	%L	100	11,9	7,9	11,5	2,7	5,5	6,7	10,4	7,6	100	64,6	11,3	20,8
1976 (Manufacturing)	K/L	2 864	2 230	1 293	280	4 562	7 082	11 154	1 284	1 792	2 713	2 772	2 030	3 228
1975 (Mining)	%K	100	9,5	3,8	0,8	4,1	15,7	32,2	4,6	4,7	100	61,4	9,2	29,1
	%L	100	12,2	8,4	8,3	2,6	6,3	8,3	10,3	7,6	100	60,1	12,3	24,5
	ΔK/L%	9,4	7,2	3,4	2,8	6,2	13,4	13,7	6,6	7,9	9,0	7,8	12,5	11,2
	ΔL%	3,7	3,5	5,1	0,4	2,3	4,9	6,3	3,4	5,8	-0,2	-1,4	-0,8	4,2

Sources: *Census of Manufacturing, 1965/66 Report No. 10-21-15, 1970 Report No. 10-21-26* and *1976 Report No. 10-21-32* and *South African Statistics, 1978*, Department of Statistics.

Notes :
K = Value in current Rands of Plant, Machinery and Equipment.
L = Paid Employment.
%K = Percentage of total stock of Plant, Machinery and Equipment in particular industries.
%L = Percentage of total labour force employed in particular industries.
ΔK/L% = Compound annual rate of growth of R value of Plant, Machinery and Equipment per man.**
ΔL% = Compound annual rate of growth of employment.**
* Excluding Diamond Mines.
** Both over the period 1965/66 to 1975/76.

25 Table 7. Net Capital Movements and Net Domestic Fixed Investment (R Millions).

	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Private Capital Movements Net Changes in Foreign Liabilities																
Long Term																
Direct	-15	2	42	71	31	123	129	135	89	138	63	66	159	134	5	61
Non-Direct	- 8	- 1	21	21	119	30	11	33	32	109	- 26	193	587	210	301	187
Stock Exchange	-89	-43	8	10	33	113	16	44	83	112	- 30	- 26	- 36	- 86	- 21	15
Short Term																
Direct	20	- 5	21	17	18	46	37	104	97	- 50	- 44	407	- 20	-118	-111	- 63
Non-Direct	13	- 3	5	46	- 41	43	6	- 3	82	45	- 30	142	-122	- 39	-203	-286
Total Net Change in Foreign Liabilities	-79	-50	97	165	160	355	199	313	383	354	- 67	782	568	101	- 29	- 86
Total Net Change in Foreign Assets	-13	-22	8	- 34	- 50	- 87	- 69	- 43	- 56	-117	- 86	-144	-137	- 56	-171	-312
Total Net Private Capital Movements	-92	-72	105	131	110	268	130	270	327	237	-153	638	431	45	-200	-398
Total Net Capital Movements Central Government & Banks	15	15	85	- 19	- 79	70	- 6	98	197	87	- 64	139	700	847	-250	-834
Total Net Capital Movements Public Corporations & Local Authorities	- 8	1	4	20	27	66	30	148	185	179	257	462	891	612	201	416
Net Domestic Fixed Investments	939	1 130	1 504	1 333	1 961	1 564	2 038	2 585	2 782	2 258	3 235	4 675	5 521	4 796	4 030	3 996
Public Authorities	326	412	579	588	598	628	713	849	1 056	1 359	1 226	1 445	2 115	2 603	2 144	1 937
Public Corporations	63	62	110	149	210	183	201	347	410	368	423	938	1 284	1 225	1 532	1 559
Private Business Enterprises	550	656	815	596	1 153	753	1 124	1 389	1 316	531	1 586	2 292	2 122	968	354	500

NOTES

1. See for example I.D. White, The changing labour process and its consequences, a case study of a general engineering firm in Natal, and C.E. Meth, Are there skill shortages in the furniture industry? both in *South African Labour Bulletin*, Vol. 4, No. 7, November 1978

2. Quoted in Mark Blaug, *An Introduction to the Economics of Education*, Penguin, Harmondsworth, 1976, p. 159

3. Barry Thomas and David Deaton, *Labour Shortage and Economic Analysis*, Basil Blackwell, Oxford, 1977, p.17 ff.

4. In certain motor car manufacturing plants in the United Kingdom, spot welding machine operators, an occupation usually requiring not more than one week's training, are classified as skilled workers. This reflects the strength of organised labour (Private communication with U.K. shop steward group, 1979). In the 1978 SEIFSA Main Agreement, Spot welding is a Rate G occupation, i.e. 63c/hr. The skilled workers rate (Rate A) was R2,18/hr. (Government Notice R.1112 of 2 June 1978).

5. See Meth, *op. cit.*

6. See Harry Braverman, *Labor and Monopoly Capital. The Degradation of Work in the Twentieth Century*. Monthly Review Press, New York and London, 1974, pp 442 and 443.

7. Quoted in *ibid*, p. 441

8. Jill Nattrass, Job Advancement : Difficulties in the South African Context, Paper presented at HSRC Conference, September, 1979. A recent study of the Peterborough Manual workforce which excluded only craftsmen found that "most jobs differ in this respect only that they involve different levels of debasement". From this it followed that most workers were objectively capable of acquiring the necessary skills. They estimate that 85 per cent of the workers could do 95 per cent of the jobs. See *The Working Class in the Labour Market*, R.M. Blackburn and Michael Mann, MacMillan, London, 1979, p. 280

9. *Financial Mail*, May 18, 1979, p. 578

10. *ibid.*

11. Lieb J. Loots, A profile of black unemploymnet in South Africa : two area surveys, SALDRU Working Paper No. 19, April 1978, Table 19, p. 21. These results are not claimed to be representative, but they do raise

serious doubts about the validity of many current truisms relating to the unemployed.

12. See *Die vraag na en aanbod van mannekrag in die RSA in 1981 : Deel II*, HSRC Report No. MM. 73, Pretoria 1978, p. 74 ff. Two processes, i.e. replacement of lower educated workers by those with higher qualifications because of excess supply of educated labour-power and squeezing of those with some education into labourers occupations requiring no education because of a projected shortage of these workers, are both likely to occur, according to the HSRC.

13. In an article which could be misinterpreted as a defence of racism, Jones argues that, "unrestricted by State shackles, job Africanization of equal productivity jobs is the inevitable result of the actions of black workers, employers and white workers, all acting independently in what they perceive to be their own best interests". Due to 'economic effects' beyond the control of 'leading group members' black advancement depresses wages, a most happy prospect for capital. See Robert A. Jones, Is Black Advancement a Threat to White Employment Security?", in *Job Advancement in South Africa*, South Africa Foundation, 1980.

14. Robert Davies, Capital Restructuring and the Modification of the Racial Division of Labour in South Africa, *Journal of Southern African Studies*, Vol.5, No. 2 April 1979.

15. Davies, *op. cit.*,pp. 186 and 187

16. Although it may not be possible to demonstrate the existence of shortages of 'unproductive' workers, it may well be possible to show that circulation has proceeded with less than 'average efficiency' by consulting the ratios of different financial indicators culled from company annual reports. These ratios, published by Pretoria University cover a considerable period and should be comparable with similar statistics from other capitalist countries. The task of analysis though is no mean job. This is one of the relatively rare propositions in Marxian economic analysis where 'hard data' is available.

17. Davies, *op cit.*, p. 188

18. *ibid*, p. 189

19. *ibid*, p. 188

20. *Census of Manufacturing 1976, Report No. 10-21-32*, Department of Statistics p. vii. Inflation Rate estimated from Section on prices in *S.A. Statistics 1980*, Department of Satistics.

21. W. Lazonick, Industrial Relations and Technical Change : the case of the self-acting mule, *Cambridge Journal of Economics*, Vol. 3, No. 3, September 1979, p. 258.

22. Davies, *op. cit.*, p. 183

23. *ibid.* p. 184

24. *ibid*, p. 183

25. Iscor undertakes a disproportionate amount of training in the SEIFSA group, of which it is a member. See C.E. Meth, Trade Unions, Skill Shortages and Private Enterprise, *South African Labour Bulletin*, Vol. 5, No. 3, October, 1979, p. 75 ff. and *Financial Mail*, April 11, 1980 p. 155.

26. See for example *Standard Bank Review*, July 1979, p. 3.

27. See Meth (1979) *op. cit.*, p. 78. It is interesting to note that with much better information at his disposal, Wiehahn also misinterprets and thus exaggerates the seriousness of the skill shortage.

28. *Manpower Survey No. 12, April 1977, All Industries and Occupations*, Department of Labour, Pretoria, p. 7 and Davies, *op. cit.*, p. 183

29. Davies, *op. cit.*, p 183

30. *ibid.*

31. See Table 1 in this article and ILO *Yearbooks of Labour Statistics*.

32. See Table 1.

33. *Manpower Survey No. 12, 29 April 1977, Sector Groups*, Department of Labour, Pretoria.

34. Arnt Spandau, Mechanisation and Labour Policies on South African Mines, Paper presented at the Biennial Conference of the Economic Society of South Africa, Cape Town, 1979.

35. See for example, Paul T. Christy and Karen J. Horowitz, an Evaluation of BLS projections of 1975 production and employment, *Monthly Labor Review*. August, 1979, p.8. "The absolute difference between actual and projected employment for each of the 71 industries studied averaged 81 099 jobs, or 8,0 per cent of total employment for these industries."

36. Davies, *op. cit.*, p. 184

37. *ibid.*

38. J.A. Parsons and N.L. Robertson, The Existing and Future Resources of the Republic of South Africa : Will these be Sufficient to Meet the Needs of Expanding Populations? Unpublished paper, Human Resources Laboratory, Chamber of Mines.

39. *ibid*, p. 16

40. *ibid.*

41. *Population Census 1970 - Occupations, Report No. 02-05-11*, Department of Statistics.

42. *The Demand for and Supply of Manpower Part 1*, Human Sciences Research Council, Report No. MM. 70, Pretoria 1977. See Tables 29 to 36. Davies refers in his article to this report, but not to its sequel, Part II, Report No. MM 73 of 1978 (mainly in Afrikaans) which deals extensively with projected shortages.

43. Female participation rates in some Eastern European countries for example approach those of males. See ILO *Yearbooks of Labour Statistics.*

44. According to Human Sciences Research Council Report No. MM. 73, *op. cit.*,pp. 70-74, "The average participation rate for White women increased from 29 per cent in 1960 to 36 per cent in 1970, and an average figure of 42 per cent is estimated for 1981."

45. Estimated from *Manpower Surveys* Nos. 8 to 12

46. *Economic Development Programme for the Republic of South Africa 1978-1987, Volume 1.* Office of the Economic Advisor to the Prime Minister, Pretoria, 1979, p-123.

47. Human Sciences Research Council Report No. MM 73, *op. cit.*, Tables 6.2 (a) to 6.5

48. Davies, *op. cit.*, p 189

49. Value is obviously used here in the bourgeois sense, i.e. price.

50. Davies, *op. cit.*, p. 189

51. Wages per ton mined in 1966 = R0,54 and in 1975 = R1,34. Estimated from data in *South African Statistics 1978*, Department of Statistics Pretoria, pp. 11.3 and 11.8

52. Apparent gross surplus per ton mined in 1966 = R0,62 and in 1975 = R2,03. Estimated from same source as above.

53, Escom consumed 36 per cent of total coal production in 1966 and 49 per cent in 1975. See Electricity Supply Commission, *Annual Report 1976.*

54. See *South African Statistics 1978, op. cit.*, p. 11.6.

55. Davies, *op. cit.*, p. 189

56. Tony Elger, Valorisation and 'Deskilling' : A Critique of Braverman, *Capital and Class*, No. 7, Spring 1979, p. 88.

57. Davies, *op. cit.* p. 182

58. At least 4000 manufacturing establishments, 7 500 construction establishments and 16 000 retail establishments came into existence in the period 1960-3 to 1972-6. Source: *South African Statistics 1978* and *Census of Manufacturing 1976, op. cit.*

59. Davies, *op. cit.*, p. 189

60. *Annual Economic Report 1975*, South African Reserve Bank, p. 5.

61. See Table 7 following the Appendix to this article.

62. See Table 1 in this article.

63. *Economic Development Programme, op. cit.*,pp. 88 and 89

64. South African Reserve Bank, *Quarterly Bulletin*, December 1979, pp. 12 & 13.

65. Sources of statistical information for Table 7 are as follows: *A statistical presentation of South Africa's quarterly national accounts for the period 1960 to 1974.* Supplement to South African Reserve Bank, *Quarterly Bulletin*, March 1976. South African Reserve Bank *Quarterly Bulletin*, September 1979. *South Africa's balance of payments, 1956-1975* supplement to South African Reserve Bank *Quarterly Bulletin*, March 1977.

66. See Table 7.

67. Economic Development Programme, *op. cit.*, pp 14, 84 and 88

68. *ibid.*, Table 7.8, p. 80

69. "The public sector at present still disposes directly of some 30 per cent of the financial resources of the country, as against only 20 per cent of a decade or so earlier", Economic Development Programme, *op cit.*, p. 71

70. Recall that the majority of the shortages were located there - see Table 1.

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APPENDIX

On the difficulty of identifying productive and unproductive Workers.

'Information' is a commodity input into many production processes - it has use value, exchange value, it is bought, sold and sometimes stolen. It is produced by workers under conditions sometimes approaching those on the shop floor and the labour process by which it is produced is often subject to deskilling by mechanisation and fragmentation.

In South Africa in 1977, there were reported to be 27 990 workers in Occupation No. 217 'Office Machine Operator, Duplicating Machine, Punch Card Machine, Printing Machine, Comptometer, Photostat, Computing, 'etc.[1] This occupation is in the category 'Clerical Workers' - how many of these workers are unproductive? According to Mandel, all wage labour indispensable to the production process is productive labour. Since production is impossible without "engineers, people working in laboratories, overseers and even managers and stock clerks"[2] they too are productive workers.

What constitutes the realm of production of value and surplus value and who are the productive and unproductive workers? Using the breakdown in Table 1 and following Mandel[3], it is suggested that the following industries constitute the 'productive' sphere:

SIC MAJOR DIVISION

1. *Agriculture*
2. *Mining*
3. *Manufacturing*
4. *Electricity, Gas and Water*
5. *Building and Construction*
6. That part of *Trade* concerned with the selling of meals in restaurants.
7. That part of *Transport and Communication* which is involved in transporting commodities as opposed to people, i.e. most of Sector Group 29 and part of Sector Group 37 (SAR & H)

   That part of Sector Group 38 (Postal Services) which produces commodities, e.g. television films.

There were 1 191 508 workers in occupational categories 01 - 03 i.e. Professional, Semi-Professional and Technical; Managerial, Administrative and Executive; and Clerical, in South Africa in 1977. Ignoring those workers in the three categories in the Public Services, i.e. 352 695

workers, one is left with approximately 312 000 workers in those industries which produce value and surplus value and 526 000[4] in the realm of circulation.

Following the earlier line of reasoning, it will now be argued that a substantial proportion of the 312 000 workers referred to above are 'productive' workers *and hence not active in the realm of circulation* at all.[5]

NOTES

1. *Manpower Survey No. 12, April 1977, All Industries and Occupations*, Department of Labour, Pretoria, p. 7 and Davies, *op cit.*, p. 183.

2. Marx, *Capital, Volume 2*, Penguin and New Left Review, London 1976. Introduction by Ernest Mandel, p. 46.

3. *ibid*, p. 44

4. All of the category 01-03 workers in Sector Group 29, and approximately half of those in Sector Groups 37 and 38 are assumed to be concerned with value and surplus value production.

5. No assumptions about class are implied in this argument.