

AN ANALYSIS OF BLACK UNEMPLOYMENT IN SOUTH AFRICA

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INTRODUCTION

Estimates of black unemployment in South Africa range very widely. Since very few black workers qualify for unemployment benefits, there are no measures of black unemployment of the usual kind based upon unemployment registers.

J.L. Sadie calculates that approximately 4 to 8% of the black male labour force were unemployed in 1976. (Sadie 1977). He is hesitant to provide any figures for black females. Recently, the South African Department of Statistics has provided a measure of black unemployment based upon a population survey. Their initial estimates were that 12,4% of the total black labour force were unemployed in October 1977. Black male unemployment was estimated at 9,4%. (Current Population Survey, October 1977). Later results of the survey suggest that total black unemployment had declined by January 1979 to 9,1%, and the figure for black males to 6,1% by January 1979. (Current Population Survey, January 1979).

A number of other recent studies have argued that black unemployment is of a much higher order and that these high levels have persisted over the past two decades. Charles E.W. Simkins estimates that the percentage of the black labour force unemployed has varied between 17,5% and 22,4% since 1960. (Simkins 1978). (See also Knight 1977a; Loots 1977. These and other related works are surveyed in Bromberger 1978).

This paper will show that much of what has been described and measured as 'unemployment' is in fact low labour force participation rates in the modern sectors of the South African economy. It will be explained that confusing unemployment with participation rates is inconsistent with the usual meaning of the term 'unemployment' in economic analysis and unhelpful for appropriate policy recommendations. While our analysis is applied to South Africa we believe it is highly relevant to the analysis of rural 'unemployment' in all developing countries characterized by 'dualism' in the form of modern economic sectors coexisting with traditional largely subsistence agriculture.

The black unemployment issue in South Africa has been discussed without much apparent regard for contemporary economic analysis of unemployment. One has in mind, in particular, the work of Robert E. Lucas Jr. and Leonard A. Rapping and others associated with the Edmund S. Phelps collection (Lucas and Rapping, 1967; Phelps 1970).

It will be shown below that the intertemporal substitution approach to labour market

behaviour can explain much of what has been described as unemployment in South Africa. Moreover it can do so without having to revoke the well known laws of supply and demand. Such a revocation is implicit, when resort is made to descriptions of unemployment as 'structural' or 'involuntary', if by these terms, it is meant that labour markets fail to clear.

Presumptions of 'structural' or more generally long term 'involuntary unemployment' are inconsistent with the economist's fundamental view of man as a rational economic agent attempting to maximise real income. If workers are unemployed and prefer not to be then the effect of excess supplies of labour at any given real wage must drive wages down and employment up, in the absence, that is, of comprehensive and effective minimum wage legislation or effective and comprehensive barriers to occupational and locational mobility of labour.

The South African labour market is largely unencumbered by effective minimum wage legislation, but is justifiably notorious for legal barriers to the mobility of Black labour. These barriers are more restrictive for women than for men. Black workers are restricted from moving permanently to the urban areas and some urban employers are not allowed to hire certain categories of black labour. It is thus possible to distinguish a number of categories of black workers in South Africa. There are black workers who have rights to work and live "permanently" in the cities. There are blacks illegally working in the cities who may intend to be temporary or permanent urban residents. There are also legal black migrant workers with rights to temporarily reside in the urban areas. Black rural male workers may sell their labour to certain employers (e.g. the goldmining and construction companies) for periods not exceeding 12 months whereafter they must return home for a period of at least 3 weeks, after which they may be hired by the same or an alternative employer. Out of total measured black employment in South Africa in 1970, some 1,3 million or 32,5% were migrant workers (Wiehahn Commission p.2). A large number of the workers employed on the gold mines, some 208,000 (49%) in 1977, are migrant workers from outside South Africa (Chamber of Mines 1971-1978).

There is, however, strong evidence that the market for migrant labour and for unskilled labour generally is competitive to an important degree. The evidence, for which any serious analysis of recent South African labour market developments must account, is the very substantial increase in real Black wages that occurred between 1973 and 1978 in all sectors of the South African economy. (South African Reserve Bank, 1979).

Norman Bromberger notes also that some calculations of this unemployment, in particular that of Simkins, show little response to the booming South African economy in the sixties when aggregate employment increased substantially (Bromberger 1978, p. 15). In a careful critique of the unemployment literature and despite his obvious difficulty in reconciling some of the interpretation with the evidence Bromberger remarks 'that of course much of the unemployment is involuntary'.

(Bromberger 1978, p. 16). In economics the term 'involuntary unemployment' has had several meanings all of which imply that labour markets cannot clear. (see Pigou 1914, Pigou 1933; Keynes 1935; Kahn 1976). However, the opposite of involuntary is voluntary. The term voluntary, outside of economic analysis, often evokes powerful connotations of a tolerable situation. This interpretation should not be drawn from our critique of the unemployment analysis in South Africa. We understand, as all economists should, that the choices economic agents exercise or are able to exercise are subject to constraints and this may leave them in a highly unfortunate situation. Even though we presume that economic agents do the best they can, they may still find themselves between the devil and the deep blue sea despite the success markets may have in clearing.

Choice of Participation in Labour Workers

Economic analysis is the analysis of choice. It is only by observing acts of choice the economists can make sense of economic behaviour. Even when labour mobility is effectively restricted and as a result labour markets become highly segmented supply and demand analysis remains relevant. Segmented markets also clear. The detailed interactions between what may be regarded as segments of the market for migrant labour, are analyzed in a related paper (Gerson, 1979).

For rural black women the practically comprehensive restrictions on the supply of their labour to the urban areas and the limited market demands for their labour outside of the urban areas results in a very low market-clearing real rural wage and little employment in a labour market. Many of these women are, in fact, engaged in economic activity on communally-owned land or at home and may not be seeking alternative work even though they might very much prefer work in the urban areas. They are constrained from moving to the cities and do not compete for wage employment in the rural areas precisely because real wages there are unattractively low. There are still other even more unfortunate black women who have been forced to resettle in areas where wage employment is much less freely available than was the case in their previous locations. In the absence of land rights, these women may have to rely entirely on income earned by members of their family engaged as migrant workers. Still other families have migrated to these 'resettlement' areas because men can more easily gain access thereby to wage employment other than employment on white-owned farms. (See Maree, 1977, p. 134).

Yet even in these extreme cases, it is not helpful nor accurate to describe such women as "involuntarily unemployed" *if*, as mentioned previously, by that term we are to understand that the labour market fails to clear. Their poverty cannot be attributed to the failure of markets to clear, but is partly the effect of restrictions on their mobility. If these restrictions were removed, we presume that many more black women would join the urban labour market. We may also presume that at about current market real wages, the elasticity of the supply of black women to the labour market is very high. We explain in some detail why the concepts

of full-employment and unemployment have analytical relevance only in association with market-determined real wages.

The inappropriateness of any description of white South African housewives unencumbered by legal restrictions on their mobility, are as much part of the potential supply of labour as black rural women. As with black women, we may presume that more white women would work if real wages were higher. At available real wages and employment opportunities, many women choose housework. Yet both black and white women engaged in housework are part of the potential supply of labour to the market.

Having made these observations about the participation of women in the labour force and before proceeding to develop a more rigorous analysis of the South African labour market, it may be well to note that the seminal Lucas-Rapping paper was influenced by the pioneering work of Jacob Mincer (Mincer 1962) and others (Cain, 1965, Bowen and Finegan, 1965) on labour force participation rates.

Mincer et al sought to explain the participation of American women in the labour force and perceived that the effective economic decision making unit was the family rather than the actual or potential worker. In the Lucas-Rapping model the labour inputs in the production function are specified in terms of the number of employed persons per household.

The extended family as the economic agent and inter-temporal allocation of work effort in the money wage sectors are of obvious importance for South African labour markets (see Houghton and Walton 1952; Willsworth 1978; Loots 1978). Black migrant male workers often spend a considerable period of time between jobs in the modern sector. Surveys show that rural black males between the ages of 16 and 60 spend an average of 10 months at home for every 12 months spent away on labour contracts and that the period between contracts increases with age (see Knight, 1977b). In addition, it appears that the proportion of time engaged in the labour market varies inversely with land rights and with the quality of the land.

In the absence of controls on their mobility and in response to different real wages, black workers would no doubt make different decisions about the allocation of their labour and time. Nevertheless under prevailing circumstances or 'constraints' they clearly exercise choice. Our analysis will examine the logic of that choice and draw the implications for the unemployment issue.

Normal and Expected Wages and the Inter-temporal Supply of Labour

In developed economies the unemployed are identified by their receipt of unemployment benefits. To qualify for these benefits they may have to be willing to accept employment at their 'normal' wage. In other words the unemployed would answer No and YES to the questions "are you working?", and "would you be prepared to work at your normal wage?". The labour force is then regarded as the sum of these unemployed and

the workers concurrently employed. For a worker to accept work at less than a normal wage may be an economic decision of considerable importance. It may entail movement to another city or to a less agreeable job as well as a reduction in the wage packet. Information about changes in the normal or expected wage, i.e. about market conditions, is not necessarily obtained costlessly or instantaneously on dismissal or quit. While expectations about wages are being revised or confirmed a worker is unemployed. Such workers select unemployment as an alternative to taking any job anywhere that may be on offer irrespective of the wage. Search unemployment is both a "voluntary" and a highly productive activity (see Alchian 1970). It should also be noted that the pool of measured unemployed is never a stagnant one. Different men and women simultaneously enter and leave the pool. An increase in the unemployment rate is equivalent to an increase in the average time the average unemployed person spends between jobs. In the United States in 1974 the average duration for an unemployed adult man was 8½ weeks and for an adult woman 18 weeks (see Brunner and Meltzer 1978).

Periods of unemployment may leave life time income and consumption expectations unaffected. Instead of actively seeking work, perhaps less agreeable work, and by so doing forcing real wages down, workers may substitute more leisure or 'home work' when real wages are considered temporarily low and less leisure or 'home work' when real wages are expected to be higher. Such reactions would make for highly elastic supplies of labour in response to change in current real wages.

The best examples of such labour market responses in the United States are found in the automobile industry. The demand for motor cars is known to fluctuate and workers are periodically laid off or called upon to work overtime. The periods of lay-off or overtime do not necessarily alter life time income and consumption plans. Workers laid off do not typically seek employment and by so doing press down wages in other industries. Instead they expect to be recalled to their previous jobs and consume more leisure in the interim.

Choosing between leisure or farm work now or later is very important for migrant workers in South Africa. As indicated migrant workers do often spend long periods between wage employment and an increase in unemployment would be reflected in an increase in the average period between jobs. Calculations of the potential labour force are highly sensitive to assumptions about these periods. (see Knight 1977b, p. 16).

The important point is that migrant workers on average choose not to be continuously engaged in labour contracts. Their choice is a function in part of the real wages available and expected and their decisions to supply labour overtime help determine real wages. If real wages were higher, then presumably migrant workers would spend a greater proportion of their lives in modern sector employment. For the migrant worker, the alternative to accepting perhaps less preferred employment at less than what is regarded as a normal or expected wage, is a longer period between wage

employment now, in the belief that real wages will be higher in the future. Such responses represent an attempt to maximise life time utility. These reactions would, analogously to the developed economy experience, increase the current real wage elasticity of labour supplies.

The Lucas-Rapping Model

We shall now present some formal theory as developed by Lucas and Rapping to explain the supply of Black labour in South Africa. It is not necessary for our purpose to discuss the production function or the aggregate demand function of the economy. This would be the task of a comprehensive model of the South African economy. With Lucas-Rapping we consider the utility function of the consuming unit, the family, subject this utility function to the appropriate budget constraint and describe the labour supply function. We add a demand-for-labour equation and make some observations about the determination of expected wages. Following the tradition established by Milton Friedman with his permanent income hypothesis about consumption (Friedman, 1957), the relevant time horizon, for which consumption and labour supply decisions are made, is understood to be a long one - in effect, the life-time of the consuming unit.

The family is regarded as taking present decisions to supply labour to the market now and/or later in the attempt to maximise life time utility from the consumption of goods including 'leisure'. We shall not attempt to distribute the time spent out of the labour market between leisure and work, for example, house or farm work (homework). We shall assume that both activities generate consumption either directly or indirectly. That is following Lucas-Rapping

$$U = U(C, C^*, N, N^*) \quad (1)$$

where U is utility, C present consumption, C^* expected future consumption, N the present supply of labour and N^* expected future supplies of labour to the market. The utility of the family is assumed to increase with present and expected future consumption and to decrease with current and the expected future time spent working.

This utility function is subject to a budget constraint. The budget constraint is that the present value of C and C^* appropriately valued and discounted should not exceed the present value of existing wealth, present and expected money income, i.e.

$$PC + \frac{P^*}{(1+r)} C^* \leq A + WN + \frac{W^*N^*}{(1+r)} \quad (2)$$

where P and W represent the current price and wage level and P^* and W^* expected prices and wages, r is the rate of discount and A the stock of wealth. Included in A in South Africa would be the value of the families rights to communal land. From the utility function and budget constraint, Lucas and Rapping derive the current supply of labour (worker days per this year) as

$$N_s = F\left(\frac{W}{P}, \frac{W^*}{P(1+r)}, \frac{P^*}{P(1+r)}, \frac{A}{P}\right) \quad (3)$$

After deflating all the arguments of the labour supply function by current prices.

It is not possible to unambiguously sign the derivatives of this function because of the indeterminacy of the income effect. On the presumption that future goods and leisure are substitutes for current leisure and that leisure and 'home work' not intended for market are not inferior goods the partial derivatives of the labour supply function can be signed as follows,

$$\begin{aligned} \frac{\partial F}{\partial \frac{W}{P}} > 0 & \qquad \qquad \frac{\partial F}{\partial \frac{W^*}{P(1+r)}} < 0 \\ \frac{\partial F}{\partial \frac{P^*}{P(1+r)}} < 0 & \qquad \qquad \frac{\partial F}{\partial \frac{A}{P}} < 0 \end{aligned} \quad (\text{See Lucas \& Rapping, 1969})$$

Employers demand labour up to the point where the marginal productivity of labour is equal to the wage rate. The demand for labour also depends on the stock of capital K and the institutions that inhibit or encourage the employment of labour.

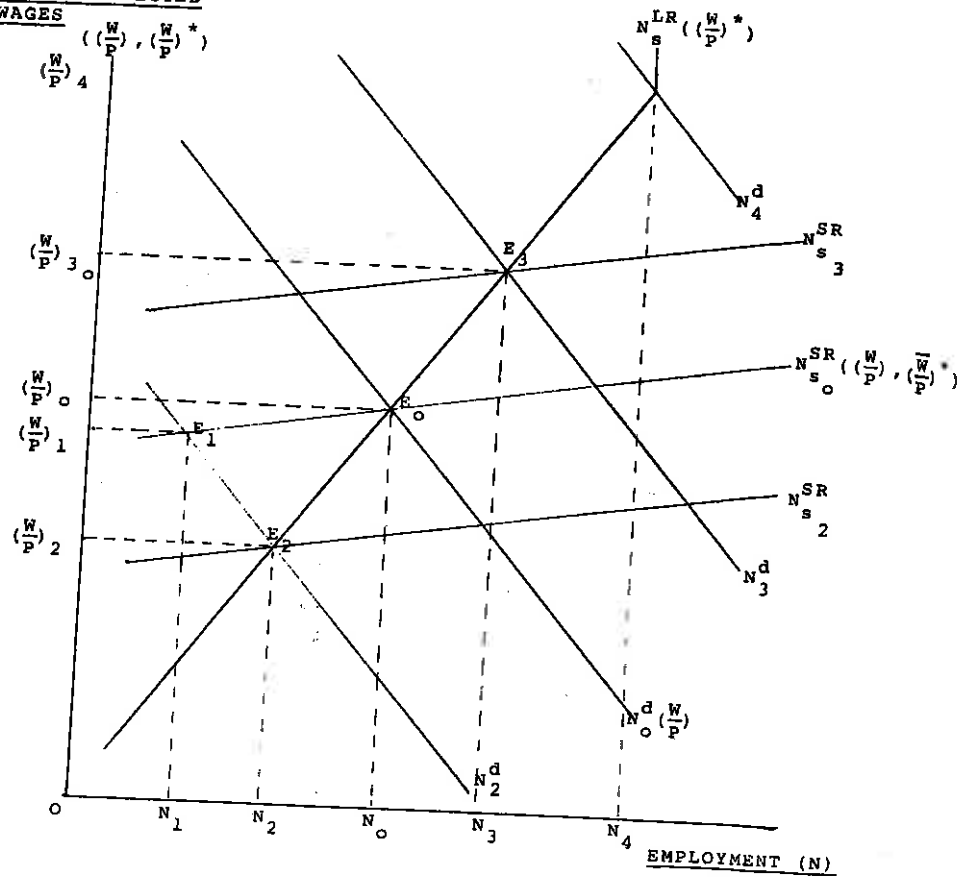
$$R. \text{ i.e. } N_d = H\left(\frac{W}{P}, K, R, \dots\right) \quad (4)$$

Demands for labour are assumed to decline with increases in real wages and with more restrictive labour regulations and increase with the stock of capital.

Other equations of a labour market model could be concerned with the determination of expected 'normal' wages and expected prices. In the Lucas-Rapping model wage and price expectations are adaptive. Wage and price expectations are a geometrically weighted average of past wages and prices with the weights declining with time. An alternative candidate for wage and price expectations would be the rational expectations approach whereby expectations are generated by the model itself. (Kantor 1979). While we will not specify wage and price expectations here, if wage expectations are to any degree adaptive, then rapid increases in real wages, followed by a recession, (as occurred recently in South Africa), would increase the current real wage elasticity of labour supplies.

It should be understood that the intertemporal approach to labour supply decisions is perfectly general. It could be used and applied to an analysis of the market for labour in general or to particular kinds of labour e.g. Black migrant labour. We shall apply the labour supply function in a simple diagrammatic analysis in order to consider alternative measures of unemployment. In this analysis we distinguish a short run and a long run labour supply function. The short run function indicates the response to changes in current real wages, expected wages taken as given. The long run supply function represents the response to increases in expected or normal wages.

CURRENT AND EXPECTED REAL WAGES



On the vertical axis we measure current and expected real wages, on the horizontal axis quantity of labour supplies and demands. The long run supply of labour curve labelled N_s^{LR} is assumed slightly positively sloped in response to increases in normal or expected real wages $(\frac{W}{P})^*$. The short run supply of labour curve N_s^{SR} is assumed to be elastic in response to changes in current real wages $(\frac{W}{P})$ with expected wages taken as given $(\frac{W}{P})^*$.

The demand for labour N_0^d as indicated, is negatively sloped in response to current real wages. The labour market clears at the intersection of the N_0^d, N_s^{SR} and N_s^{LR} curves with N_0 , the level of employment. This position may be thought of as an equilibrium where the economy has achieved its long run potential rate of growth. At $(\frac{W}{P})_0$ current wages are equal to expected wages $(\frac{W}{P})^*$. Everybody who wishes to work at the market clearing wage will be working. By the usual and indeed the only consistent definition of the term, N_0 represents full employment. Should aggregate

demand for output fall and the demand-for-labour curve shift inwards to N_2^d , the labour market will clear mainly through a reduction in the labour supplied to the market. Without any change in expected wages workers will withdraw labour along the N_{S0}^{SR} curve. $N_0 - N_1$ represents unemployment and the number of unemployed workers who would be prepared to work at their normal wage. $\frac{N_1 N_0}{ON_0}$ represents the proportion of the labour force unemployed. If an inability to realize normal wages comes to be recognised and expected wages decline, the short run labour supply curves would slide down along N_S^{LR} . $(\frac{W}{P})_2$ and N_2 would constitute another potential long run equilibrium level of real wages and employment with the economy operating permanently at a lower level of output. While $N_2 N_0$ workers might be regarded as 'permanently' unemployed in unemployment statistics, the effect of such unemployment will not impact on market-determined real wages. Therefore such a permanent reduction in demand may be described as having increased the natural rate of unemployment. That is to say the natural rate of unemployment consistent with an equilibrium of (i.e. no change in) real wages. The extra permanent unemployment is clearly "voluntary". At available real wages some members of the potential labour force now prefer not to work. N_3^d and N_3 in turn indicate permanently higher level of demands for and supplies of labour in response to a permanent increase in aggregate demand for goods and for labour and so represent a reduction in the natural rate of unemployment.

In South Africa, co-incident with substantial increases in the price of gold, the South African Chamber of Mines, who are responsible for labour recruitment on the mines, attempted to recruit a larger proportion of their labour force from South Africa. The policy was effective in that an extra 127,490 South African workers per annum were recruited between 1971 and 1977, an increase of the order of 147%. This necessitated over the same period a tripling of real wages for black workers on the South African gold mines.¹⁾ These developments are perfectly consistent with our model and are not reconcilable with the presumption of a large pool of involuntarily unemployed black labour.

Measures of Unemployment

In the South African literature referred to, black unemployment had not been measured as a movement from N_0 to N_1 in our diagram. The population survey of the South African Department of Statistics on Black unemployment has probably come closest to such a measure. Knight and Simkins among others, have measured the potential supply of labour quite independently of any consideration of market-determined real wages, this is to say quite independently of the ability of South African employers to pay the higher real wages necessary to attract all the able

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	<u>TOTAL BLACK LABOUR FORCE</u>	<u>SOUTH AFRICAN COMPONENT</u>
1971:	386,000 (100%)	86,464 (22,4%)
1977:	422,000 (100%)	213,954 (50,7%)

Employment Bureau of Africa. Chamber of Mines 1971-1978.

bodied men and women into full time employment. Simkins' measure of full employment is, in fact, an approximation of the potential supply of labour and could be illustrated by N_4 in our diagram. Simkins-type unemployment is the ratio $\frac{N_1 N_4}{CN_4}$ (See Simkins 1978).

This measure may be thought of as the equivalent of the natural rate of unemployment for an economy with low labour force participation rates. As may be seen, 'full-employment' defined as very high labour force participation rates, would require a demand-for-labour curve Nd_4 and a real wage $(\frac{W}{P})_4$. Increases in the demand for labour of this magnitude are the stuff of economic miracles and devoutly to be wished. Freeing competition for labour would also shift the demand curve for labour to the right.

It is perhaps necessary to defend the assumption of a negatively sloped demand curve for labour as a function of real wages that intersects the supply curve at full employment. Keynesian type approaches to unemployment might suggest the possibility of some permanent deficiency of aggregate demand and so of the demand for labour. Such a presumption would be invalid and obviously so for a small open economy like South Africa with access to world markets. The world demand curves are highly price elastic. The limits to South African exports lie not on the side of demand, but on the ability of actual or potential exporters to sell at a profit. Decreases in real wages and therefore in costs of South African production would increase exports.

Conclusion

Keynesian 'involuntary' unemployment is always attributed to a deficiency of aggregate demand and is regarded as a temporary cyclical phenomenon. The cure for deficient demand unemployment is an appropriate reduction in real wages which could be achieved either by a reduction in money wages relative to prices, or an increase in prices relative to wages. Low labour force participation rates may only increase in response to increases in real wages.

Clarity of thought and appropriate policies require that a different label be attached to circumstances represented by positions to the left and right of N_0 in our diagram. Careful analysis should make the important distinction between poverty and unemployment. Low levels of real wages in South Africa accompanied by low rates of participation in the labour market are manifestations of poverty. If real wages were higher participation rates and employment could be greater. What has come to be described as unemployment in South Africa would be more accurately and usefully described as the difference between actual employment and the potential supply of labour, or, alternatively as the natural rate of unemployment.

The objective of this paper has been to illustrate an approach to the employment issue in South Africa which does not require abandoning the tools of supply and

demand analysis. Given real wages and expected real wages and access to non-wage income and given also the restrictions on their mobility, Blacks choose periodic employment in the modern sectors of the economy. If real wages were higher or restrictions less onerous they would act differently.

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