PUBLIC SECTOR WAGES AND EMPLOYMENT
IN AFRICA: FACTS AND CONCEPTS

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This study was undertaken as part of an analysis of wage and employment trends in developing countries being conducted by the Employment and Rural Development Division of the World Bank's Development Economics Department. The aim of this larger study is "to establish a better and more comprehensive empirical assessment of aggregative trends in employment, unemployment, real wages and labor incomes in developing countries along with some tentative explorations of comparative patterns of wage and employment relationships between major economic sectors."

The specific objective of this study of public sector wage and employment policies in Africa is to provide a descriptive account and some conceptual approaches to this dimension of the labor market. It is hoped that the study will benefit researchers interested in labor market questions concerning developing nations while also providing information and insights for operational staff involved in country economic work.

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CHAPTER ONE - INTRODUCTION

The last 50 years have witnessed considerable growth in the public sectors in most, if not all, nations. As both a producer of goods and services and as a consumer of factors of production the public sector has grown to be a dominant force in many economies. In the developing nations of Africa, which are of central concern to this paper, this trend has been particularly apparent.

The significance of the public sector's direct economic role in Africa need not per se be cause for concern, but coupled with that continent's generally disappointing past decade of economic performance, development practitioners have become alarmed by certain aspects of the growth in the public sector. The focal point for this alarm is often public expenditures. In Africa, as in the rest of the developing world, unfavourable international commodity prices movements and increasing debt servicing requirements have placed all public spending under close scrutiny. Since the public sector's wage bill in the developing nations averages 70%\footnote{1}{1/} of government consumption expenditures* it is not surprising that the wage and employment policies of the entire public sector have been

\footnote{1/}{All numbered footnotes are bibliographical and appear at the end of the paper. Textual footnotes are noted by \*'s.}

* "Government consumption," or more formally, "general government consumption expenditures," is defined by the U.N. System of National Accounts as military expenditures of all kinds, compensation of employees, and purchases of goods and services at all levels of government, less the sale of currently-produced government services. "Government" for this purpose is broadly defined and tends to include all public sector activities with the exception of parastatals and public enterprises.\footnote{2/}
called into question. Reactions such as, "Government salaries are too high!" or, "The public sector is too big!" are also not surprising.

Although problems of public finance may draw attention to the wage and employment policies of the public sector there are also other issues involved. For example, the performance of the public sector is likely to be influenced by the competence and commitment of public employees. Poor performance by civil servants may impede economic growth, especially in those African nations where the public sector is considered to be the leading economic sector. In these nations, appropriate wage and employment policies within the public sector, since they influence the performance of public servants may be an important factor in achieving the objectives of development strategies.

Economy-wide issues of resource allocation are also affected by public employment decisions. In Africa, where shortages of human capital are seen as major barriers to economic development, public demand for workers coupled with government education policies which influence labor supply will critically affect the distribution of scarce human resources. How efficiently labor is allocated throughout the economy will further depend upon government wage practices which may substantially influence the entire wage structure, and hence the allocation of labor within the public as well as private sectors of the economy.

In addition to the general issues of the performance of public servants and the efficient allocation of resources, policy advice on public sector wage policy is important because relative to many other wage policy instruments, decisions on public sector salaries and employment practices
may actually have a substantial impact. Compared to more traditional forms of wage policy, such as minimum wage laws which are directed at the labor market at large, public sector pay scales may affect greater numbers of workers and do so at minimal enforcement costs. Given the acknowledged limitations of most wage policies, government pay scale adjustments may emerge as one of the few effective wage policy controls available. Decisions on adjusting these pay scales may directly alter the distribution of earned incomes both through the remuneration of public employees and also through demonstration and spillover effects which influence private sector decisions.

In addition to wage policy, public employment policies are also important instruments. The theme of the government as "the employers of last resort" for educated labor has been repeated in many African nations.* If such policies are pursued the implications for allocation, distribution, and the level of unemployment will obviously be significant.

* The "employer as last resort" theme is voiced in many contexts. For example, a U.S. Dept. of Labor report on the Egyptian economy notes, The Government has tried to avoid the problem of educated unemployed by guaranteeing a job in government or the public sector to all University graduates. In government and public sector enterprises employment is estimated at 20 to 25 percent above actual need. 3/ Similarly, in the Ivory Coast, the World Bank reports -

With the number of school leavers increasing, the government will be under pressure to devote a larger share of its ordinary expenditures to wage and salary payments. These pressures result partly from its role as "employer of last resort". 4/
Although acknowledged as an area of public policy which may have far ranging effects, public sector wage and employment practices have received little attention as research issues. As a result, we know very little about existing practices* and perhaps, even worse, have little insight into what an optimal or at least preferred system would consist of. This lack of insight can at times surface in the form of inconsistent or contradictory policies governments may pursue involving public employment. An illustration is provided in the World Bank's 1977 Country Economic Report on Zambia.

The report first notes that faced by declining, or at best, stagnating revenues, the Government has taken steps to control the growth in recurrent expenditures. One such measure has been to freeze government salaries for a two year period, after which salary growth will be "linked to increases in labor productivity in the economy." 6/

The report later comments that:

The greatest impediment to a rapid improvement in the quality of education continues to be the shortage of well-trained Zambian teachers. [Furthermore, with regard to secondary school teachers]...there has been a 20% turnover among Zambian teachers, with many leaving for higher paying jobs in the parastatal sector... To prevent secondary teachers (and other civil servants) from moving to parastatals, the Government has banned all such transfers and raised salary scales for all civil servants, including teachers. 7/

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* The major exception is Martin Segal's 1971 ILO study, Government Pay Policies in Ceylon, 5/ which is more of an institutional history than an analysis of the economics of public employment.
By implication, the fiscal policy objective of controlling the growth in recurrent expenditures cannot be satisfied by the same action which is required to meet the goals of education policy. If the shortage in well-trained Zambian teachers is to be eased, an increase in salaries seems to be necessary. But such a policy is obviously inconsistent with a freeze on government salaries.

What the Zambian example helps to illustrate is the range of circumstances where policy advice on public sector salaries is required. At the project level, increases in salaries or staff may be required to produce desired outputs. The issue becomes one of the micro-economic impact of wages on incentives. Meanwhile, at the aggregate level, policy advice is forthcoming on the distribution of public revenues among competing claims. Lower public sector payrolls may be the prescription offered at this level. A more uniform approach which coordinates micro and macro objectives is clearly required.

The objectives of this paper are not to suggest what this "uniform approach" might be. Obviously this is a far greater task than can be accomplished in this brief study. Given the paucity of research into public sector wage and employment policy, this analysis must be viewed as exploratory. Hopefully it will clarify certain issues while also providing some basic facts which are all too few in this area.

The specific objectives of the paper are two-fold. First, since knowledge about the size and distribution of public sector activities in Africa is fairly limited, a descriptive profile of public sector employment is presented. This profile will chart the
evolution of such employment for a subset of African countries. By providing this information we hope to clarify the dimensions of public sector growth in terms of employment levels, changes in skill composition, organizational forms (i.e. government versus public enterprises) and the affected sectors of economic activity. A separate chapter will be devoted to examining the available evidence on earnings in the public sector, especially as they compare with earnings in other sectors of the economy. Our second objective is to try to provide some kind of framework for understanding the process of wage and employment determination in the public sector. This includes consideration of the objectives and constraints which condition public sector wage and employment outcomes. It also requires a better appreciation of the relationship between public sector outcomes and their impact on wages and employment throughout the rest of the economy.

Organization

The paper proceeds by first addressing the more conceptual issues of the economics of public employment in Chapter Two which attempts to provide a framework for thinking about wage and employment outcomes in the public sector. Chapter Three and Four examine the available evidence on public employment for a selected number of African nations. Chapter Three focuses on employment trends while Chapter Four reviews the earnings data. Chapter Five concludes with suggestions for future research.
CHAPTER ONE - NOTES


2. ibid., p. 17.


7. ibid., p. 124.
Chapter Two - The Economics of Public Employment

An economic analysis of public sector wage and employment behavior can be conveniently divided into two separate but related issues. The first issue considers wage and employment determination within the public sector. This subject has received very little attention by economists, even in industrialized nation settings. Our approach will be to consider the objectives and constraints which condition wage and employment outcomes within the public sector. In order to achieve this overview the differences between public and private sectors of the economy will be discussed. The second issue considers the economic implications of interactions between the public and private sectors in the labor market. We will specifically address the problem under the assumption that the public sector is large relative to the rest of the formal economy.

For the purposes of this inquiry, questions concerning the optimal size or involvement of government in different economic activities will not be considered. In other words, the actual role of government in the economy is an issue that will not be addressed. We will accept as given that a government has decided to produce certain outputs — education, utilities, defense, etc. — and will be interested in what determines the wages and number of workers employed to satisfy these output goals and in what secondary impact these decisions have on the rest of the labor market. We will also treat as given a government's budget constraint; thereby, eliminating the problem of how governments weigh revenue against expenditure decisions.
A. Wage and Employment Determination Within the Public Sector

Within any public sector there are competing demands for scarce government revenues. This problem, of course, is not unique to the public sector. Individual firms and households face similar allocative decisions. What differentiates the public sector from other economic decision making units are fundamental differences in objectives and constraints. This should not be interpreted as suggesting that the public sector is unconstrained and can do whatever it pleases. All that is being suggested is that the customary treatment of economic decision making may need to be modified to accommodate the circumstances of public actions.

If an activity is undertaken in the private sector of a competitive economy, economic theory suggests that wages will be driven to the point where the reservation price of labor equals the marginal revenue product of the last worker hired. In other words, firms reward workers according to the value of marginal contributions to output. These results are realized because competition in both product and factor markets guide firm behavior. The discipline of profit maximization is enforced through price and quantity adjustments where failure to make the proper adjustments results in losses and the eventual death of an enterprise.

Implicit in this model of wage and employment determination under competitive conditions there are a number of assumptions which may be unrealistic when considering public behavior. For example, competitive firms are assumed to produce along their production functions -- technical relationships which indicate the minimum input combinations required to produce given levels of output. Profit maximizing behavior requires that firms produce along their production functions since failure to do so results in higher costs and subsequent inability to successfully compete with rivals.
It is from this production function relationship that the firm's demand for labor is derived and is determined to be the marginal productivity of its workers.

Can a similar analysis be applied to public behavior? The first distinction between private competitive versus public behavior that must be addressed concerns the production function relationship. There is no guarantee that public outputs will be produced along any existing production function. In other words, without the discipline of the market place technical efficiency need not be achieved. This further implies that the derived demand for labor cannot be deduced on the basis of productivity criteria and instead, the public sector's demand for labor must be viewed as responsive to other, as yet unspecified, forces.

What we are suggesting is that the private sector has a greater likelihood of approaching technical efficiency in production due to the market signals and pressures generated by competition and the profit motive. In the government's case substitutes for these forces may not exist. This does not imply that the government desires to be inefficient. On the contrary, reducing costs may motivate many public actions and may move the government toward efficient methods. However, our inability to assume technical efficiency certainly complicates the analysis of government labor demand and differentiates the outcome we expect from the private sector.

If we are able to assume technically efficient outcomes, the analysis of public demand for labor poses another problem, namely how does the government determine the value of the marginal physical contribution of its workers? In the private sector this is achieved through knowledge of output prices. However, the prices of public outputs are not market determined. Instead, they are administered prices. This suggests that even
a technically efficient public agency would have difficulty in determining wage policy since no simple algorithm for evaluating worker contributions would be available.

What this discussion of the competitive model of wage determination is meant to illustrate, is the limited insight that traditional wage theory offers investigations of non-profit maximizing behavior. The whole realm of productivity based explanations may therefore be inappropriate in the public sector context. Although the strictly competitive model of wage and employment determination is of limited value in this situation, the even more basic notion upon which it is founded, namely constrained maximization, remains a useful starting point. We consider this notion of constrained maximization by first discussing the various objectives of public sector compensation and employment policies.

Objectives:

We have already dismissed profit maximization as the objective which motivates public sector behavior. As an alternative for developed economies, the notion of vote-maximizing behavior has been suggested. The vote-maximizing principles envision governments acting to maximize the satisfaction of the median voter. By so doing a government maximizes its chances to stay in power. These median voter theories replace dollars by votes and postulate economically efficient outcomes due to the correspondence between voter satisfaction and individual utility maximization. Such theories have been directed at the problem of public output determination and have not been applied to the corresponding problem of derived demand and, hence, public sector employment. Although the vote maximization behavioral approach may be warranted for certain participatory democracies, for most developing nations little relevance can be granted this type of approach.
In the same family as the vote-maximizing models belong managerial and bureaucracy models. These models are also directed at understanding pricing and output determination outside of a purely competitive environment. Based on the personal motivations of managers and bureaucrats within organizations these models link decision making to a package of factors likely to contribute to the success of given individuals.* These models are likely to provide some insights into the behavior of the public sector. They certainly underscore the potential bias toward employment over cost objectives which may characterize many aspects of government hiring policy.

If we move beyond the self-interest of individual bureaucrats, public sector objectives in wage and employment policy are likely to include broadly defined wage equity goals** and unemployment minimization of particular groups. How the public sector weights these competing goals is difficult to determine.

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* These factors include interest in the growth of firm or bureau size, generally risk-averse behavior and ease of management.

** Equity wage policies are often motivated by basic needs arguments for raising the wages of the least skilled to a subjectively determined "decent" wage. Such policies will have the dual purposes of directly affecting public employees of the least skilled categories while also serving as demonstration wages for the rest of the urban economy.
As has already been noted, some notion of cost minimization is also likely to be part of government wage and employment policy. Cost minimization differs from profit maximization in that output bundles are fixed. A firm may minimize the costs of producing a given output, however, in order to maximize profits it would need to produce an altogether different amount of output. For a given output, cost minimization implies choosing the right combination of factor inputs and factor prices. For the competitive firm factor prices are given, so the only choice is selecting the least costly input bundle. If a government acts to minimize total costs, it faces a more complex problem having to choose both the technically efficient input mix and to reward factors at their reservation prices. Alternatively, government cost minimizing behavior may be simpler if it refers to unit, not total cost minimization. In this case, the government only needs to determine the reservation price of inputs and to pay them accordingly.

In this instance, it is likely that government employment policy would be determined first, followed by a cost-minimizing wage policy.

Whether or not we can expect the government to achieve any cost minimizing objective depends, to a great extent, on the constraints in the system. If internal pressures to cost minimize are weak, then other objective are more likely to be realized. Note that it is this full set of competing objectives which differentiates much of public from private behavior.

We continue our discussion by considering the constraints the public sector faces in making wage and employment decisions.

Constraints:
As we have previously stated, public sector wage and employment practices are not unconstrained. The extreme view that governments can pay whatever nominal wages they choose, to as many employees as they desire, cannot be substantiated. The most obvious constraint facing the public sector is a
budget constraint. Although revenues are not completely exogenous there are limits to the receipts government can make claims to. Within any given budget constraint there will be intra-public sector competition for resources. Theories of bureaucracy see this competition as a substitute for competition in the market place, and conclude that pricing decisions will approach market outcomes as the extent of bureaucratic competition increases.

Competition for funds within the public sector is probably one of the strongest forces restraining escalation in public salaries if not in the entire wage bill. A testable hypothesis for future research would be to correlate a government's ability-to-pay with fluctuations in public compensation and staffing. It may prove to be the case that ability-to-pay criteria, which are likely to depend on export prices and/or agricultural output, have a greater association with wage changes than do the competitive forces of labor supply and demand.

While intra-public sector competition for resources may represent an upper-bound limit to government salaries, factor market competition is likely to be most responsible for insuring that public sector wages are not too low. Since governments often possess a monopsony advantage in specific labor markets the potential exists for low wage policies for certain groups. As the only or, at least, major employer of specific skills the government can act as a factor price setter. However, the supply curve of labor establishes wage minimums which cannot be ignored. The supply curve by definition embodies the alternative employment opportunities open to workers. If government wage offers are too low, the public sector will neither be able to fill new positions nor retain its existing personnel. In other words, the discipline of the market,
at least in the long run*, affects factor market compensation through direct competition in such markets.

Although the government competes for labor, this competition may not be a particularly binding constraint. The overwhelming position of government employment in formal labor markets in Africa implies that competitive forces will be weak. The "tightness" as opposed to the existence of the constraint is what actually varies with the degree of alternatives facing labor.

The "tightness" of the supply-side constraint is probably one of the characteristics which most distinguishes the public salary problem between developing and industrialized nations. For the latter, considerable competition for labor between public and private sectors exists. If public compensation falls below the rate determined by market forces in the private sector, the public sector can anticipate staffing problems. The existence of well functioning labor markets at all skill levels in industrialized countries facilitates determination of public sector salary scales since a factor price-taker approach can be, and usually is, adopted. This approach, often referred to as the "prevailing wage principle," reflects the competitive climate of labor markets in advanced economies.

* In the short run, however, adjustments may not be very automatic. If, for example, senior staff positions are being underpaid, it may take many years before compensation levels are increased in response to rapid turnover or inferior job performance. Market discipline in public sector output markets is far more forgiving than it is in the private sector and thus appropriate factor market reactions may require significantly longer gestation periods.
In developing nations such a climate may fail to characterize many labor markets and competition for workers may generally impose less severe constraints on the public sector. For example, if the government is the primary demander of secondary school graduates, considerable latitude will exist in determining their compensation level. For unskilled workers, "prevailing wages" are likely to coexist with considerable un- and under-employment again implying significant latitude in wage setting. Since "prevailing wage" approaches cannot be adopted because private markets, which compete with the public sector for labor, are too small or are even non-existent, public sector wage policy must rely on other determinants which operate within the constraints imposed by both competition for public revenues and by the existing reservation prices of labor.

The public sector is also constrained by some institutional characteristics of the sector. For example, most public servants possess some form of job tenure. The relative security of their positions differentiates them from private employees who can more readily be dismissed. By inhibiting the ability to terminate employees, civil service tenure systems reduce the flexibility of wage and employment determination within the public sector. Greater job security may be compensated for by lower salary levels but the fact remains that the degrees of freedom in making adjustments are reduced in the public sector through tenure-type arrangements.

Wage flexibility is further impaired in most civil services by the institutional mechanisms of wage setting. Major adjustments in the
level of employee compensation are determined by high level administrative tribunals which meet at infrequent intervals — usually in response to building tensions over pay and benefits within the civil service. This system is in marked contrast to the more atomistic system of wage determination within the private sector. Even in private activities characterized by unions and major collective bargaining agreements wage negotiations tend to be more frequent and given the number of unions, relatively decentralized. The wage setting mechanisms of the public sector imply that short-run adjustments are more apt to be made through non-wage channels such as fringes, promotions or modifications in the quantity or quality of work. Our point is that even though labor and management within the public sector have recourse to implicit wage and employment adjustments, institutional constraints leave the system with less flexibility than may be prevalent in the rest of the economy.

* Wage adjustments, which may or may not be intended, are also achieved between salary review commissions through the eroding impact of domestic inflation. As a result, a complex lag structure which incorporates a ratchet effect may typify the relationship between public and private sector earnings. After each public sector wage settlement inflation begins to erode that sector's real wage position. Erosion continues until so much pressure builds up within the civil service that salary reform becomes necessary. The new wage settlement is likely to entail sizeable wage increases which yield parity or better than parity solutions vis-a-vis the private sector. Inflation subsequently takes its toll "winding down" the ratchet until the next public sector wage round.
Claims that governments are unconstrained in their employment behavior or that all public employment is unproductive can easily be dismissed. The public sector implicitly undertakes procedures to satisfy complex objectives within a set of constraints imposed by fiscal resources, the market place and institutional rigidities. Given the complexity of public sector objectives coupled with the nature of the constraints they face it is not surprising that straightforward solutions to wage determination cannot be derived.

Where does this leave us in evaluating public sector wage and employment policies? At best we have barely opened the lid to the "black box" of government behavior. Future research needs to establish criteria for evaluating employee performance in the public sector. Such work will also require a synthesis of conceptual approaches plus evidence on past behavior to sort out the complexity of the issues involved.
B. Public and Private Sector Interactions in the Labour Market

Public sector wage and employment policies may have an impact which extends beyond the immediate domain of public employment. In fact, economists have more often expressed concern about the role of public sector wage policies on wage determination in the private sector than on its impact on intra-public sector outcomes. Along with multinationals and trade unions, public employment has been cited as a prime contributor to labor market distortions in developing nations. Labeled as a wage-leader, public sector wages are seen as setting standards which strongly influence the entire formal sector's wage structure. When the resulting wage levels in the formal sector are considered as failing to reflect the opportunity cost of labor in the society, the ensuing inefficiency in the national allocation of labor is traced back to government wage policy.

Does government wage policy distort urban labor markets?

This question can be treated as both a theoretical and an empirical query. From the standpoint of theory we are interested in the necessary conditions for public sector salaries to be able to distort the wage structure. As an empirical issue we want to assess what evidence there is that such distortions have actually occurred. Both topics require an evaluation of public/private wage differentials.

Since so many forces contribute to producing wage differentials, it is necessary to first simplify the problem by only considering differentials between identical groups of workers. We further assume that all the non-pecuniary advantages and disadvantages of employment in the respective sectors of the economy are correlated with the wage rate.
Under these assumption, how can prevailing public/private differentials be interpreted in a market where, as in Africa, the public sector is a large employer of labor?

This last consideration, the relatively large size of the public sector, suggests that the structure of the formal labor market does not coincide with any atomistic portrayal of labor demand. Instead, the labor market may reflect concentration in factor demand. If this is an accurate abstraction, then the public sector, rather than being a factor price-taker—the assumption behind the "prevailing wage" hypothesis of public sector wage determination in industrialized nations—will have a marked influence on factor price determination. In other words, the government will face positively sloped rather than infinitely elastic labor supply curves, and its wage and employment decisions will affect labor market outcomes in the private sector of the economy.

This point can be illustrated with the aid of Figure II-1 below. In order to simplify the analysis we assume that the total supply of labor is fixed. (In the diagram this amount is represented by \( L' \).) Private sector demand for labor at each wage rate is indicated by the marginal revenue product curves, \( MRP_v \). The supply curve of labor facing the public sector is the difference between total supply and private demand at each wage. The resulting curve, \( S_L \), is nothing other than the reservation price of labor facing the public sector.

If we assume that the government adopts a specific employment policy and chooses to employ a certain amount of labor, say \( L^* \), \( w_1 \) will represent the lowest wage the government can pay. Any wage above \( w_1 \), say \( w_2 \), may actually be offered, but competing demands for public revenues are likely to exert pressure to reduce that wage over time.
FIGURE II-1

The Labor Market
If the government chooses to employ $L^*$ workers, and pay them the cost minimizing wage, $w_1$, the private sector is likely to offer the same wage to its labor force of $(L'-L^*)$ workers. At this wage there would be no unemployment and no inter-sector wage differentials. Note that if the government adopts an alternative employment policy, hiring more than $L^*$ workers, private sector wages will rise, assuming some elasticity in the labor supply curve facing the government. What this analysis illustrates is that size alone may be sufficient for public sector employment policy to affect private sector wage rates.

If the government does not choose a cost minimizing wage say, $w_2$, it is more difficult to predict the impact on the private sector. Competition among workers for private sector jobs could force private sector wages to $w_1$. However, if each private firm, which is small in comparison to the market, perceives the market wage rate as being what the government pays, private wages may rise above $w_1$. Whether or not the resulting unemployment would drive private sector wage down depends upon the institutional make-up of the labor market.

What these models of public/private interactions in the labor market are meant to illustrate is the care which must be taken in interpreting wage differential evidence between these sectors. Under purely competitive models of wage determination, the absence of wage differences is a signal of allocative efficiency. However, if monopsony elements exist in the labor market, the presence or absence of wage differences cannot, per se, be used as evidence of the economic efficiency of public and/or private sector wage behavior.
The importance of wage differentials as market signals, however, should not be dismissed. This information must be carefully evaluated along with quantity-side indicators. For example, queueing for public jobs, restrictions on entry, changing patterns of job qualifications, rates of turnover and absenteeism, and prevalence of job moonlighting are all examples of quantity adjustments in the labor market which signal allocative responses to existing relative prices. Sensitivity to these trends at the level of given occupations or salary grades should facilitate wage adjustments which may promote greater efficiency within the public sector and the labor market as a whole.

Figure II-1 can also be used to address one further issue concerning public sector compensation. Once one considers intra-public sector wage policy, one recognizes the used to distinguish between pay policies within various types of public organizations. In essence, the public/private distinction may be mirrored in intra-public sector wage determination. Throughout this paper, two forms of organizing public activities -- the civil service and parastatals -- are contrasted. Parastatals tend to lie outside of the formal government budgetary process and as such have considerable flexibility in determining wage payments. They may also face less competition for funds than do agencies under central budgetary control. A working hypothesis may therefore be that the relative impact of cost-minimizing behavior may lead to a civil service/parastatal employee wage differential where competition for funds acts as a stiffer constraint in the government sector, producing lower levels of compensation for civil servants. In Figure II-1, parastatal workers may gain a wage advantage equivalent to
(w₂ - w₁) as a result of this difference in constraints within the public sector.*

That public sector wage and employment decisions are likely to have a significant impact on the labor market -- on resource allocation and on the distribution of earned income -- is difficult to deny. What the exact nature of this impact is, is a question for which we have few answers. With regard to further analysis, the conceptual issues concerning public sector salary structures raised in this chapter unfortunately do not often translate into well defined, empirically testable hypotheses. It is hoped, however, that the issues that have been raised can provide at least some guidance in interpreting the evidence discussed throughout the rest of the paper.

* This issue is explored in greater detail in Chapter Four in relation to empirical evidence from Tanzania.
Chapter Two - Notes


CHAPTER THREE - Public Sector Employment in Africa

Even if it were not for the behavioral issues cited in the previous chapter, sheer size alone would motivate interest in the employment practices of the public sector. As a large, if not dominant, demander of labor services in most African nations the public sector exerts considerable influence on all formal sector employment. In order to appreciate the nature and extent of this influence, a better understanding of the structure of public sector employment is required. In other words, if we are to understand how public sector demand influences the labor market, we have to identify those areas or sub-markets where its effects are most likely to be felt.

This chapter proceeds by considering some of the dimensions of the structure of public employment, including its relative and absolute size, rate of growth and dispersion across economic sectors. The skill mix of public employees and the changing organizational forms which manage these workers are also considered. Complementary to developing this profile of public employment will be a description of public sector output, especially as between public services versus public administration. Before proceeding, it is important to note that characterizations of public employment in developing nations, especially in Africa, are extremely rare and that perhaps the major contribution of this paper is the documentation of existing facts and trends. We begin this discussion by a review of definitions and sources.

A. Data and Definitions

Most of the data for the empirical analysis is derived from employment and earnings surveys. These surveys (see Annex III-1 to this chapter for a detailed bibliography) have a long tradition in the Anglophone
African nations, usually dating to the late colonial period and extending into the 1970s. Substantial changes in coverage and definitions prevent meaningful use of the entire time series, but in each instance an attempt has been made to cover as many years as possible. The scarcity of current data — only 2 of the 5 nations under consideration have any published information past 1975 — reflects the pervasive lack of data in Africa.

The employment and earnings surveys cover the formal or modern sector and attempt to capture all wage employment. All public employment is surveyed while private sector establishments, since they are contacted through establishment lists of commerce ministries, often have some truncation in the sample — a minimum size, say, of establishments of 10 workers or more. All economic sectors are included while most self-employment is excluded. Agricultural employment is usually limited to plantation or large estate workers plus government extension, marketing board, etc. employees.

Complete coverage of the formal sector is often constrained by outdated or incomplete employee or establishment lists and/or by the failure to achieve high response rates to survey questionnaires. These problems are likely to differentially accrue to the private sector which is apt to feel less obligated to respond to government surveys than would a government's own departments and ministries. As a result, employment and earnings surveys may yield upwardly biased estimates of the public sector's share of total wage employment. The lack of independent household surveys which rely on national, or at least, urban sampling frames, make it difficult to check for the robustness of estimates derived from the employment and earnings surveys.
The East and West African nations for which time series information on public versus private employment is readily available from published sources include Ghana (1951-72), Kenya (1955-77), Malawi (1968-76), Tanzania (1962-74) and Uganda (1958-70). Nigeria, Mauritius, Sierra Leone and Zambia have some breakdowns of information along these dimensions but the data generally proved to be too minimal for our purposes. Whenever appropriate, however, information from these nations is referred to. The bias in the sample toward nations of similar historical experience is unfortunate. The sample will obviously not permit us to discriminate between the impact of different colonial legacies.

Amongst the different countries in the sample the distinction between public and private is not identical. This is to be expected since these are accounting devices, not behaviorally distinct categories. An attempt has been made to reclassify the data in a uniform manner. "Public sector" therefore includes all central and local government employees as well as all parastatal workers. All non-civilian members of the military could not be included since they are excluded from the employment and earnings surveys.

Public enterprises, quasi-government agencies and parastatals are names used to describe a vast array of activities and organizational forms. In each case some degree of government control is implied and for this reason they have been included unless otherwise noted in our public
sector category. This format need not have been adopted by the particular
countries involved. In Kenya and Ghana, parastatals are recorded as public
whereas Tanzania and Malawi classify their parastatals and quasi-government
activities as private sector. Given the hybrid nature of these organiza-
tions, wherever possible, their behavior will be contrasted with the more
explicitly defined government and private sectors.

B. International Comparisons of the Size of the Public Sector (How
Big is Big?)

Public sector employment in most developing nations is considered
to be large. Since large is a relative concept it requires some standard
of comparison. Is public sector employment large relative to the indus-
trialized countries, or to a nation's own population, or to its labor
force? Clearly each concept has a different implication. In this chapter
the size of the public sector is considered in relation to a number of
dimensions: cross-country; over time; relative to the labor force; relative
to "formal" sector employment; and, according to skill class.

Before discussing the data from the employment and earnings
surveys referred to above, we briefly consider Keesing's (1975) comparisons
of the number of public employees for countries with a wide range of national
per capita incomes. The data originally appeared in government publications
and have been reported in World Bank and IMF country reports and papers.*

* Special thanks are owed to Don Keesing for permitting us to use these
unpublished results.
As should be expected the definitions used to determine the "public sector" vary.* Keesing has made a considerable effort to create uniform categories and his public sector employment figures tend to include all levels of local and central government, plus the military, while excluding all parastatal enterprises. Keesing also indicates which country estimates are particularly suspect in their coverage and by omitting these observations we reduce his sample from 44 to 34 nations. The remaining nations include 3 industrialized, 3 Asian, 4 North African, 10 Latin American and 14 Black African countries.

Keesing concludes from observing the data that there is a positive correlation between GNP per capita and the number of public employees per 10,000 population. What we wish to consider is whether African experience has deviated from the cross-country "norm". By adopting this comparative approach,** it is possible to establish one frame of reference for determining how "big" public employment in Africa is.

Keesing's dependent variable, the number of public servants per 10,000 population, is clearly influenced by the political economy of a given nation. However, one can abstract from this factor and simply consider how a nation's level of economic well-being, measured by per capita GNP, affects the relative number of public employees. In Figure III-I, this

* A further problem exists in that some figures, especially for Latin America, refer to budgeted as opposed to filled positions. In other cases information was obtained from population censuses rather than from enumerations conducted by government agencies. These weaknesses in the data must be taken into consideration when evaluating the reported findings.

** This type of approach is common to development economics, see, for example, Chenery and Syrquin (1975).
relationship is illustrated by the scatter-diagram of public employees per 10,000 population and GNP per capita* (in constant U.S. $ 1972). The trend line is the estimated regression between the two variables. There clearly exists a positive relationship between the per capita size of the public sector and the level of national economic development. Furthermore, Figure III-1 illustrates that once one standardizes for population size and national income, public employment levels in Africa seem to fit the overall cross-country pattern. Based on these observations we can conclude, that at least in a relative sense, the public sector's of this sample of African nations are not "too big".**

C. National Evidence on the Size of the Public Sector

Although the cross-country comparisons provide some perspective on the relative size of public sectors, they offer little insight into either the composition of public employment or into the intra-national problems of labor allocation. With regard to the former, size alone is less interesting than would be international comparisons of public services rendered. After all, even if 2 nations had the same number of publicly employed individuals perception of this employment might change depending on how many, say teachers versus soldiers there were. This general issue

* For ease of exposition GNP per capita is expressed on a logarithmic scale.

** In fact, a more rigorous analysis of these data suggest that public employment in Africa may be smaller not larger than would be predicted by international trends. These results appear in Annex III-2 below and are based on a more general formulation of the relationship between public employment, national income and population size.
FIGURE III-1
Public Employment - Cross-Country Evidence

Public Employees Per 10,000 Population vs. GNP Per Capita (U.S. $1972)

- African Nations
- Non-African Nations
is considered in section E below. To better appreciate the latter point, i.e. the allocative dimension of public sector impact on labor market outcomes, requires country specific employment profiles. We begin to generate these profiles in Table III-2, which defines the public sector to include all levels and types of government plus parastatal activities but excludes the military. Table III-2a presents the actual year of each estimate as well as basic descriptive information. Table III-2b presents the relevant ratios.

The last 2 columns of Table III-2b are meant to illustrate two important facts concerning public sector employment in the selected group of nations:

(1) public employment is a small percentage of the total labor force (column C);

(2) public employment is a large percentage of all formal sector employment (column D).

With reference to the first point, Table III-2b illustrates the highly agrarian nature of the economies under consideration. In all cases, at least half and usually more than three quarters of the labor force is estimated to be in agriculture. Within agriculture there is little wage employment due to the predominance of subsistence or at least family farming and out of whatever wage employment does exist, public jobs are few. The size and structure of the agricultural sector directly implies that the formal sector and hence the public sector will employ a small percentage of the working age population. Table III-2b column C suggests that this percentage ranges from 5-15%.
Table III-2a: DIMENSIONS OF PUBLIC SECTOR EMPLOYMENT IN AFRICA

<table>
<thead>
<tr>
<th>Country</th>
<th>Population ('000)</th>
<th>Per Capita GNP (U.S. $ 1976)</th>
<th>Formal Sector Employment ('000)</th>
<th>Public Sector Employment ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>8,500 ('70)*</td>
<td>410 ('72)</td>
<td>430 ('72)</td>
<td>318 ('72)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>5,010 ('70)</td>
<td>400 ('70)</td>
<td>256 ('70)</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>14,600 ('77)</td>
<td>240 ('76)</td>
<td>903 ('77)</td>
<td>376 ('77)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malawi</td>
<td>5,200 ('76)</td>
<td>140 ('76)</td>
<td>264 ('76)</td>
<td>104 ('76)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>15,100 ('76)</td>
<td>180 ('76)</td>
<td>484 ('74)</td>
<td>321 ('79)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>9,760 ('70)</td>
<td>205 ('72)</td>
<td>299 ('70)</td>
<td>126 ('70)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zambia</td>
<td>5,100 ('76)</td>
<td>440 ('76)</td>
<td>369 ('76)</td>
<td>264 ('76)</td>
</tr>
</tbody>
</table>

Source: Various World Bank Publications and national employment and earnings surveys (see Annex III-1)

* Year of estimate appears in parentheses.
Table III-2b: DIMENSIONS OF PUBLIC SECTOR EMPLOYMENT IN AFRICA -- Cont'd.

<table>
<thead>
<tr>
<th>Country</th>
<th>(A) Labor Force in Agriculture (%)</th>
<th>(B) Population of Working Age (%)</th>
<th>(C) &quot;Formal&quot; Employment as a Percentage of Working Age Population</th>
<th>(D) Public Employment as a Percentage of Formal Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana ('72)</td>
<td>54</td>
<td>50</td>
<td>10.1</td>
<td>73.9</td>
</tr>
<tr>
<td>Ivory Coast ('70)</td>
<td>82</td>
<td>52</td>
<td>10.2</td>
<td>n.a.</td>
</tr>
<tr>
<td>Kenya ('77)</td>
<td>79</td>
<td>50</td>
<td>12.4</td>
<td>41.7</td>
</tr>
<tr>
<td>Malawi ('76)</td>
<td>87</td>
<td>53</td>
<td>9.6</td>
<td>39.2</td>
</tr>
<tr>
<td>Tanzania ('74)</td>
<td>84</td>
<td>51</td>
<td>6.3</td>
<td>66.4</td>
</tr>
<tr>
<td>Uganda ('70)</td>
<td>84</td>
<td>52</td>
<td>5.9</td>
<td>42.2</td>
</tr>
<tr>
<td>Zambia ('76)</td>
<td>69</td>
<td>51</td>
<td>14.2</td>
<td>71.5</td>
</tr>
</tbody>
</table>

Sources: *World Development Indicators*, The World Bank, June 1979, Table 19, "Labor Force"; Employment and Earnings Surveys.

* Estimates are all for 1977.
Within the formal sector public employment looms large. Our sample offers a range of approximately 40-75% of all such jobs. Percentages such as these do not support a view that the public sector can be treated as a factor price taker that is, that its employment and wage policies will not influence wages and employment levels in the economy.* It is likely to exert considerable market power and may even approach a position of monopsonistic influence. When the skill mix of public employment is disaggregated the sector's influence on specific formal labor markets stratified by skill or education levels is likely to be even more apparent. Given that public sector employment is small relative to the total labor force but large relative to formal sector employment implies that a final assessment of the public sector's influence in the labor market will depend, in part, upon the interactions between the formal and informal sectors of the economy.

D. The Growth of the Public Sector

The percentage share of public out of formal employment presents a static picture of the public sector's position in the labor market. As important, for appreciating allocative issues, is the dynamic pattern of growth in labor demand which has generated this static position. We would clearly expect some difference in labor market outcomes if the public sector's share of employment had always hovered around, say, 50% versus, if over time, that share had increased from 25-75%. Rapid growth in demand is usually associated with high-wage patterns (e.g. rising relative wage rates of rapidly growing regions or industries) and it is a testable hypothesis if rapid public sector growth produces the same result.

* The customary treatment, implicit in consideration of how public sector factor demand affects factor market outcomes in industrialized countries is one of neutrality. Western governments are deemed as factor price takers. Such a view probably follows from the historical patterns of public employment in these countries, especially the U.S., where the government has traditionally been small. However, even in these nations, recent events have caused a reassessment of government impact on factor demand, in part, because the public sector is no longer considered small. The so-called taxpayer's revolt in the U.S. is a good example of the changing popular view toward government size.
Table III-3 presents growth rates of public, private and total employment in the formal sector. Rather than picking 2 endpoints and computing the simple annualized percentage change in employment, growth rates were estimated by fitting an exponential function,

\[ N_t = a_0 e^{\beta t} \]

where, \( N \) = employment
\( t \) = time from \( 1, \ldots, n \)

The regression equation,

\[ \ln N_t = \ln a_0 + \beta t + e \]

yields the coefficient \( \beta \) which presents the average annual percentage increase in employment over the observed time period.

Table III-3 presents the set of coefficients for public, private and total employment growth for all the countries of Table III-2, except Zambia, for the post-Independence era. (A complete set of regression statistics for each country/group appears in Annex III-3.) In all cases the growth of the public sector is striking. (Recall that a 7% rate of growth implies a doubling of public employment every 10 years.) In fact, only the experience of Uganda during the 60's displays private formal employment growing faster than public employment, and even this difference is marginal. In 2 cases, Ghana and Tanzania, public sector use of labor stands in sharp contrast to the behavior of private formal sector which experienced negative growth. All of the nations establish the growing share of public employment during the post-Independence era.
Table III-3: FORMAL EMPLOYMENT GROWTH RATES IN THE POST-INDEPENDENCE ERA*

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Public Employment As a Percentage of Formal Employment</th>
<th>Employment Growth Rates (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Public</td>
</tr>
<tr>
<td>Ghana:</td>
<td>1957</td>
<td>51.4</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>1972</td>
<td>73.9</td>
<td></td>
</tr>
<tr>
<td>Kenya:</td>
<td>1963</td>
<td>29.6</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>1977</td>
<td>41.7</td>
<td></td>
</tr>
<tr>
<td>Malawi:</td>
<td>1968</td>
<td>33.4</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>1976</td>
<td>39.2</td>
<td></td>
</tr>
<tr>
<td>Tanzania:</td>
<td>1962</td>
<td>27.0</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td>1974</td>
<td>66.4</td>
<td></td>
</tr>
<tr>
<td>Uganda:</td>
<td>1962</td>
<td>41.8</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>1970</td>
<td>42.2**</td>
<td></td>
</tr>
</tbody>
</table>

Source: Employment and Earnings Surveys (see Annex III-1).


** The fact that the public sectors employment share marginally increased from 1962-1970 appears to be inconsistent with the observation that the growth of public employment is less than that of private employment. This inconsistency can be explained because the growth rates are obtained through an estimation procedure.

*** The observed rate of growth in Kenyan private formal sector employment is, in part, a statistical artifact. Major institutional reform in Kenyan agriculture caused a shift from formal, i.e. large plantation, agriculture to small-holder, i.e. non-wage, farm employment after Independence. If private employment growth is decomposed into an agricultural and non-agricultural component the respective estimated growth rates are 0.4% and 4.1%. Private non-agricultural employment was, therefore, growing at a "respectable" rate but still slower than the public sector. Analogous institutional reforms in the other countries did not have the same impact due to the respective coverage of agricultural activities.
The poor growth performances of the private formal sector warrants some additional discussion. The low estimated growth rates are in all likelihood due to definitional and statistical problems as well to institutional and behavioral causes. Delineation of firm size is the most common criterion for formal sector classification and the growth of small enterprises within the private sector is not reflected in these data. It has been shown in various countries that informal sector firms are often as productive as formal establishments and that employee compensation, especially, in small-scale manufacturing, is often competitive with formal sector wage rates. By not adequately capturing employment growth in the small-scale sector, the statistics of the employment and earnings surveys may generate an overly pessimistic view of private sector employment changes.

Secondly, as has already been noted, the coverage of the employment surveys may be biased toward the public sector. This bias may have increased over time, especially as the quality of statistical reporting services diminished during the post-Independence era. Failure to maintain updated establishment lists and the absence of enforcement mechanisms to guarantee both high response rates and accurate information may have contributed to the observed wedge between public and private employment growth.

Thirdly, institutional changes occurring in the ownership structure of many activities, that is, nationalization of industries, seriously affected the relative growth of public and private sectors in some countries. Such growth was clearly not synonymous with incremental growth of new employment opportunities in either sector. To appreciate
the impact of the institutional processes which achieved the trends depicted in Table III-3 we can consider the aggregate employment series appearing in the 3 Figures below.

Both the similarities as well as the differences in national experience can be appreciated by contrasting the Kenyan, Tanzanian and Ghanaian profiles. In the Kenyan case national independence was achieved in December 1963, and after that date a small colonial administration developed into a relatively large and quickly growing African public sector. Whereas the nationalization of private industries played a minuscule role in Kenyan development, the intersecting lines of public and private employment growth in the Tanzanian graph reflect the significance of the post-1965 socialist policies of the Nyerere government. Private employment became public employment by legislative decrees. The subsequent lack of incremental growth in private employment after 1968 may reflect not only the continuation of nationalization policies but also the impact of these policies on private incentives. Turning to the Ghanaian case one observes private sector stagnation coupled with public expansion. Over a 20 year period there was no appreciable growth in private formal employment while public jobs "took-off" after Independence in 1957. Nationalizing firms played some role but most public incremental growth resulted from the creation of new jobs.*

Whether the public sector "crowds out" private employment or substitutes for lagging private demand cannot be ascertained by observing

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* The Malawi and Ugandan aggregate employment trends mirror the Kenyan patterns although the relative slopes are different. These graphs appear along with a full set of diagrams in the Appendix of Illustrations.
these trends. Even after accounting for statistical problems and major institutional changes it appears safe to conclude that public sector shares of formal employment have risen over time due to differentially more rapid growth rates, that a diversity of outcomes as well as institutional mechanisms can be observed in even a small sample such as this one, and that the presumption that public demand for labor is a major determinant of formal sector employment outcomes is likely to be valid.

E. The Distribution of Public Employment Across Economic Sectors

Given that the public sector is large and has often grown rapidly, where has its impact on the labor market been most profound? In order to address this question one would, ideally, need to specify well-defined labor markets and judge public actions within those markets. For instance, occupation-specific data could clarify the impact of public sector employment of, say, accountants or heavy equipment operators. Specific labor markets defined according to educational attainment (example: primary versus secondary school graduates) might alternatively be an appropriate dimension to consider. Unfortunately, detailed classifications such as these are not available. Information on the aggregate occupation and education structures of employment in Africa are rare, let alone further breakdowns by public/private distinctions. What is widely available are employment figures by economic sector. This information provides some insight into which labor markets are most affected by the public sector while also revealing the nature of public outputs.
The distribution of public employment in Ghana, from the pre-Independence year 1951 through 1972, illustrates the wide dispersion of public employment across economic sectors that we observe for most of the nations in our sample. (Figure below; note that for this and all subsequent graphs the area between the lines represents the amount of employment for the specified category). The data clearly argue against the view that public sector employment is predominantly in public administration. If this were the case the service sector would dominate the employment profile. Instead one observes public activity in all sectors. Also note that, at least in the Ghanaian case, public employment grows in every sector overtime.

The dispersion of public employment across economic sectors for our entire sample is considered in Table III-4 and III-5. Table III-4 presents the percentage share of public out of total formal employment by economic sectors. (For example, 70.2% of formal employment in Ghanaian agriculture is in the public sector). The cross-country evidence reveals considerable diversity across nation in the role of public employment within different economic sectors. Not surprisingly, Kenya, which relies on free market principles, has smaller public involvement in every sector as compared to the profile generated by the Socialist orientation of the 1974 Tanzanian economy. On average, across countries, manufacturing and commerce tend to be predominately private while construction, utilities, transportation and the services display a majority of public workers. Mining and agriculture clearly depend on the nation under consideration. Viewing the intertemporal dimension of the data indicates that in most cases public employment growth has dominated private growth at the sector level. The wide ranging presence of government employees throughout the formal economy is clearly in evidence.
GHANA--PUBLIC SECTOR EMPLOYMENT BY ACTIVITY

- Total Public Employment
- Public Administration
- Education
- Health & Other Services
- Transportation & Commerce
- Utilities
- Construction
- Mining & Manu.
- Agric. Services
- Other Agric.
<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Agriculture</th>
<th>Mining</th>
<th>Manufacturing</th>
<th>Construction</th>
<th>Utilities</th>
<th>Commerce</th>
<th>Transportation</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana:</td>
<td>1957</td>
<td>70.2</td>
<td>0.3</td>
<td>13.0</td>
<td>57.6</td>
<td>97.7</td>
<td>2.0</td>
<td>75.8</td>
<td>76.1</td>
</tr>
<tr>
<td></td>
<td>1972</td>
<td>89.8</td>
<td>53.6</td>
<td>29.0</td>
<td>74.2</td>
<td>100.0</td>
<td>55.1</td>
<td>95.0</td>
<td>86.7</td>
</tr>
<tr>
<td>Kenya:</td>
<td>1977</td>
<td>20.7</td>
<td>29.4</td>
<td>19.8</td>
<td>24.5</td>
<td>100.0</td>
<td>3.7</td>
<td>59.2</td>
<td>67.8</td>
</tr>
<tr>
<td>Malawi:</td>
<td>1968</td>
<td>7.7</td>
<td>40.0</td>
<td>4.0</td>
<td>49.0</td>
<td>26.7</td>
<td>0.0</td>
<td>20.7</td>
<td>80.9</td>
</tr>
<tr>
<td></td>
<td>1976</td>
<td>26.2</td>
<td>0.0</td>
<td>3.1</td>
<td>39.8</td>
<td>100.0</td>
<td>0.0</td>
<td>79.8</td>
<td>82.1</td>
</tr>
<tr>
<td>Tanzania:</td>
<td>1962</td>
<td>5.4</td>
<td>1.1</td>
<td>4.7</td>
<td>61.9</td>
<td>63.3</td>
<td>0.0</td>
<td>63.8</td>
<td>69.2</td>
</tr>
<tr>
<td></td>
<td>1974</td>
<td>42.2</td>
<td>72.9</td>
<td>39.1</td>
<td>84.8</td>
<td>100.0</td>
<td>35.6</td>
<td>83.4</td>
<td>88.4</td>
</tr>
<tr>
<td>Uganda:</td>
<td>1962</td>
<td>12.9</td>
<td>1.2</td>
<td>0.9</td>
<td>67.2</td>
<td>n.a.</td>
<td>6.1</td>
<td>65.8</td>
<td>64.5</td>
</tr>
<tr>
<td></td>
<td>1970</td>
<td>15.1</td>
<td>0.6</td>
<td>0.8</td>
<td>70.0</td>
<td>n.a.</td>
<td>1.3</td>
<td>63.3</td>
<td>70.4</td>
</tr>
<tr>
<td>Zambia:</td>
<td>1976</td>
<td>60.3</td>
<td>99.1</td>
<td>43.5</td>
<td>47.5</td>
<td>100.0</td>
<td>45.9</td>
<td>83.9</td>
<td>84.4</td>
</tr>
</tbody>
</table>
Table III-5 presents the distribution of public employment across economic sectors. (For example, 20.1% of all Ghanaian public employees work in the agricultural sector. The rows of the tables sum to 100%). Once again the cross-country patterns reveal similarities and differences between nations. In all countries, the service sector employs the majority share of public employees ranging from approximately 1/3 - 2/3 of the total. Agriculture, construction and transportation also tend to employ sizeable shares. Mining, manufacturing, utilities and commerce are almost always relatively small employers. For 3 of the 4 nations where intertemporal data are available, the share of service employment has declined implying a slower expansion in public administration and human services personnel relative to other public sector employment.

The first conclusion that can be drawn from this disaggregated information is that the public sector tends to be a significant employer in most economic sectors. This is a relevant finding if it proves meaningful to stratify the labor market according to economic sectors. Secondly, the public service sector employs the bulk of public employees. From a policy perspective, wage and employment decisions directed at this group will have a major impact on the public sector's wage bill. However, as large as this group is, there still exists at least 1/3 (Kenya 1977) and as much as 2/3 (Zambia 1970) of all public employees in other sectors. Furthermore, the intertemporal data suggest a trend toward relative expansion in non-service public employment. Public policy must therefore reach out beyond the most visible domain of public employment, namely central administration and human services, if it is to fully influence public sector actions in the labor market.
<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Agriculture</th>
<th>Mining</th>
<th>Manufacturing</th>
<th>Construction</th>
<th>Utilities</th>
<th>Commerce</th>
<th>Transportation</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana:</td>
<td>1957</td>
<td>20.1</td>
<td>0.0</td>
<td>1.8</td>
<td>19.2</td>
<td>6.0</td>
<td>0.4</td>
<td>14.0</td>
<td>38.5</td>
</tr>
<tr>
<td></td>
<td>1972</td>
<td>14.6</td>
<td>4.7</td>
<td>5.4</td>
<td>11.7</td>
<td>5.2</td>
<td>6.6</td>
<td>10.9</td>
<td>40.9</td>
</tr>
<tr>
<td>Kenya:</td>
<td>1977</td>
<td>14.3</td>
<td>0.3</td>
<td>6.2</td>
<td>2.5</td>
<td>5.1</td>
<td>0.6</td>
<td>7.6</td>
<td>63.4</td>
</tr>
<tr>
<td>Malawi:</td>
<td>1968</td>
<td>7.6</td>
<td>0.5</td>
<td>1.6</td>
<td>16.7</td>
<td>0.9</td>
<td>0.0</td>
<td>3.8</td>
<td>68.9</td>
</tr>
<tr>
<td></td>
<td>1976</td>
<td>26.3</td>
<td>0.0</td>
<td>1.1</td>
<td>8.1</td>
<td>2.9</td>
<td>0.0</td>
<td>10.0</td>
<td>51.6</td>
</tr>
<tr>
<td>Tanzania:</td>
<td>1962</td>
<td>10.2</td>
<td>0.1</td>
<td>1.0</td>
<td>23.8</td>
<td>2.9</td>
<td>0.0</td>
<td>14.4</td>
<td>47.6</td>
</tr>
<tr>
<td></td>
<td>1974</td>
<td>16.3</td>
<td>1.1</td>
<td>7.9</td>
<td>19.2</td>
<td>5.0</td>
<td>2.8</td>
<td>11.7</td>
<td>36.0</td>
</tr>
<tr>
<td>Uganda:</td>
<td>1962</td>
<td>8.1</td>
<td>0.1</td>
<td>0.2</td>
<td>21.2</td>
<td>n.a.</td>
<td>0.7</td>
<td>6.5</td>
<td>63.2</td>
</tr>
<tr>
<td></td>
<td>1970</td>
<td>7.9</td>
<td>0.0</td>
<td>0.2</td>
<td>25.9</td>
<td>n.a.</td>
<td>0.1</td>
<td>6.1</td>
<td>59.8</td>
</tr>
<tr>
<td>Zambia:</td>
<td>1976</td>
<td>7.4</td>
<td>24.3</td>
<td>6.9</td>
<td>9.0</td>
<td>2.0</td>
<td>6.3</td>
<td>6.7</td>
<td>37.4</td>
</tr>
</tbody>
</table>
The dispersion of public employment across economic sectors runs counter to one of the stylized impressions of public sector growth. This vision, of a mushrooming centralized bureaucracy, is not easily supported by available evidence. If such growth had occurred the service sector would have expanded more rapidly since public administration is classified as part of the service sector. It is possible that within each economic sector there has been bureaucratic growth and that the end result is a decentralized rather than centralized expansion of administrative "fonctionnaires." Evaluation of worker output will be needed to determine whether the economy has become saddled with an expanding work force of unproductive bureaucrats. However, at a minimum, the notion of a mushrooming centralized bureaucracy cannot be maintained by the available information.

The dichotomy between public administration and other public functions, so valuable in assessing the output of public employment, can be further illuminated by obtaining more detailed knowledge of what public employees actually do. Data from most of the nations in our sample give a more disaggregated view of public sector employment. Distinctions can be drawn between public administration and human services, permitting differentiation.

* Whether or not decentralized public expansion is preferable to more centralized growth depends upon the productive nature of the jobs involved and the ease with which policy can be enforced. Under the admittedly strong (and as yet unfounded) assumption that a good share of public employment growth is in "unproductive" jobs, policy makers must determine whether across the board cuts (for example, every public body must trim their payrolls by X%) are easier to achieve than centralized purges. Political realities may give more decentralized actions a better chance of success.
between employment in education, the health sector, etc.* The employment "activities" of public servants in Kenya for the years 1972-1976 are depicted in the Figure below. The significance both cross-sectionally and intertemporally of the education sector in Kenya is immediately apparent. In fact local and national public administration accounts, in 1976, for only 14.6% of all public employment, whereas the human services -- education, health, law and order, and miscellaneous social services -- employ almost 3 times as many workers, or 50.5% of the total.

Within each of the human service classifications there are likely to be bureaucratic structures -- everyone employed in education is not a teacher -- but the mixture of service and administrative workers will complicate any discussion of cutting back the size of the public sector. Suggesting a reduction in the number or rate of growth of teachers is politically far different from urging a cut in the number of bureaucrats.

The limited amount of available aggregate data on the employment activities of public servants is presented in Table III-6 and suggests that although the case is the strongest in Kenya, Ghana and Uganda similarly reveal that public administration employment, respectively 21% and 35% of total public employment, is not a very high percentage of the total. The intertemporal pattern (data not shown) for both Ghana and Uganda complement this trend. A 7% and 20% decline in the share of public administration workers between '56-'72 and '58-'70 in Ghana and Uganda respectively imply the pronounced employment growth of other types of public servants.

* A fully comprehensive view of public output as reflected in the structure of public employment cannot be made with these data since the military is not included.
EMPLOYMENT (TENS OF THOUSANDS)

- Agricultural Services
- Forestry and Other Agriculture
- Utilities
- Construction, Mining and Manufacturing
- Transportation and Commerce
- Law, Order and Civilian Defense
- Health and Other Social Services
- Education
- Public Admin.
- Total Public Employment

TIME (YEARS)


Employment by Activity in Kenya.
Table III-6: PERCENTAGE SHARES OF PUBLIC EMPLOYMENT BY ACTIVITY

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Administration</td>
<td>21.2</td>
<td>14.6</td>
<td>35.2</td>
</tr>
<tr>
<td>National</td>
<td>15.6</td>
<td>7.1</td>
<td>-</td>
</tr>
<tr>
<td>Local</td>
<td>5.6</td>
<td>7.5</td>
<td>-</td>
</tr>
<tr>
<td>Human Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>10.4</td>
<td>31.0</td>
<td>22.4</td>
</tr>
<tr>
<td>Health</td>
<td>4.9</td>
<td>6.9</td>
<td>-</td>
</tr>
<tr>
<td>(Law and Order)*</td>
<td>-</td>
<td>9.9</td>
<td>-</td>
</tr>
<tr>
<td>Other Services</td>
<td>4.4</td>
<td>2.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Agriculture Exc. Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7.0</td>
<td>5.8</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>7.6</td>
<td>6.9</td>
<td>-</td>
</tr>
<tr>
<td>Mining, Manufacturing</td>
<td>10.1</td>
<td>6.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Construction</td>
<td>11.7</td>
<td>2.4</td>
<td>25.9</td>
</tr>
<tr>
<td>Transport, Commerce</td>
<td>22.7</td>
<td>13.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

* Law and Order appears to be included under public administration for Ghana and Uganda.

** Agricultural services include extension workers and marketing board employees.
Another aspect of the composition of public employment which can easily be considered with the data at hand concerns the organization type of the public employer. That is, it is possible to construct the distribution of public employment across central and local governments, and parastatal bodies. Concerning the labor market, this division may be especially important given the presumed differential flexibility in making wage and employment adjustments according to organization type.*

The Figure below illustrates the rapid growth of parastatal employment in Tanzania. Ghanaian, Malawian and Kenyan patterns are similar (see Appendix of Illustration) while Uganda does not specify any such organizations during the 1960's.** As a relatively new organizational form, parastatal bodies have grown from zero or negligible employment at Independence to 46% (Ghana 1972), 36% (Kenya 1976), 32% (Malawi 1976), 36% (Tanzania 1974) and 40% (Zambia 1976) of total public employment during the 1970s. This striking similarity

* Eliot Berg, in his 1969 article on wage structure in less-developed countries, singles out the problems of wage structure in the public sector and specifically addresses the intra-public sector problem. He notes: "All the general issues which arise in the economy as a whole exist in the public sector as well. There are however, certain special features of public-sector wage structures which call for separate attention... Though easily dealt with in principle, the question of intra-public sector wage relationships is in practice extraordinarily complex, and a continuing source of difficulty in many less developed countries. In most of these countries wage and salary diversity within the public sector is the rule. But its presence unlooses a Pandora's Box of problems and is the source of much dissatisfaction." 2/

** The Figures also reveal that local government employment has tended not to grow and has often declined during the post-Independence era. This is in marked contrast to recent U.S. experience.
disguises some fundamental differences in national experience, since parastatals operate in different activities and under different regulatory controls depending upon the nation involved. For example, in Ghana and Zambia wage and employment policies of parastatals are more seriously constrained by government salary scales and general labor policies than is the case in Tanzanian public enterprises.

Another important dimension of cross-country comparisons of parastatal employment is the diversity of outputs generated by this form. The free association of parastatal employment with "productive" or at least secondary sector outputs is not warranted. In Kenya, teachers were transferred from local government control to a parastatal in 1970. By 1976, when Kenya displayed over a third of public employment in the parastatal form, better than 88% of that third represented teachers. In contrast, half of Zambia's parastatal employment is in mining, and less than 5% is in service activities. Table III-7 details the distribution of parastatal employment for 4 nations, documenting the dispersion of such jobs across economic sector. This specification of parastatal employment reinforces a previous point, namely, that neither the existing distribution nor the rate of growth of groups within the public sector, including public enterprises, suggests that any one form of employment activity is dominating the public sector's work force.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ghana</td>
<td>(1%)</td>
<td>(1%)</td>
<td>(1%)</td>
<td>(1%)</td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td>11.5</td>
<td>56.6</td>
<td>26.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Mining</td>
<td></td>
<td>8.6</td>
<td>0.0</td>
<td>2.8</td>
<td>48.8</td>
</tr>
<tr>
<td>Manufacturing</td>
<td></td>
<td>13.6</td>
<td>0.0</td>
<td>19.4</td>
<td>13.3</td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
<td>7.5</td>
<td>6.3</td>
<td>3.3</td>
<td>0.8</td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td>9.3</td>
<td>9.0</td>
<td>22.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Commerce</td>
<td></td>
<td>15.2</td>
<td>0.0</td>
<td>7.7</td>
<td>9.2</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td>16.6</td>
<td>22.1</td>
<td>10.6</td>
<td>12.8</td>
</tr>
<tr>
<td>Services</td>
<td></td>
<td>17.7</td>
<td>6.0</td>
<td>7.8</td>
<td>4.5</td>
</tr>
</tbody>
</table>
The significance of parastatal employment raises interesting questions since it is often presumed that public enterprises operate under different constraints than does the rest of the public sector. In certain instances parastatals compete in private domestic and even international product markets. Facing such competition one might expect that a profit making discipline might prevail which in turn would influence parastatal wage policy. Productivity criteria might, therefore, in a relative sense, be a more important determinant of wage and employment decisions in public enterprises than in other government activities. However, given our description of the distribution of parastatal employment across economic sectors, it does not appear that a profit making orientation is a suitable characterization for the entire parastatal sector. In fact, flexibility in making wage decisions may be the only characteristic which clearly distinguishes parastatal from all other public employment. Given both the quantitative significance of the public enterprise job category as well as its acknowledged differential wage policies, further research needs to be initiated in order to evaluate the wage and employment determinants of this sub-group of public employment.*

* We will return to consideration of the difference between parastatal and government employment in Chapter Five's review of wage evidence.
Before proceeding to a discussion of the skill mix of public employment, one further comparison of public versus private employment by economic sector will be considered. Focusing on Ghana's experience, compare the public employment trends of the Figure on page 38, with the private employment trends by sector displayed below. The public sector clearly suggests a more stable pattern of employment growth. Sharp, almost discontinuous movements characterise the private sector (e.g., the 1960-61 collapse in mining or the 1964-66 decline in commerce). The Ghanaian case may in fact be an extreme version of this phenomenon, but the other countries display similar patterns. The "recession proof" nature of public employment, so often claimed in industrialized settings, appears in evidence in the African countries as well. Interpreting the normative implications of the relative employment stability of the public versus private sectors is, of course, difficult. On the one hand, the private sector is more responsive to macroeconomic forces; on the other hand, public employment appears to ride out cyclical disturbances. Which tendency promotes the most efficient allocation of labor in the long run cannot be easily established.

F. The Skill Composition of Public Employment

Understanding the distribution of public employment across economic sectors helps to define the scope of public sector influence in the labor market, but sectoral categorizations fall short of the requirements for an analysis of allocative issues. This is the case because employment by economic sector is not the most useful stratification for specifying individual labor markets. After all, we do not perceive of a separate labor market for, say, transportation workers versus construction workers — both sectors do, for example, employ drivers. Other partitions of the employment structure are required to tackle
GHANA--PRIVATE SECTORAL EMPLOYMENT TRENDS

Total Private Employment

Services

Transport

Commerce

Construction

Mining

Manufacturing

Agriculture
issues of labor allocation. Education, regions, occupations and skill levels, are some of the more customary dimensions chosen for this purpose. If a one-to-one correspondence between economic sectors and skill intensity could be formulated the readily available sectoral data would serve as useful proxies, but such correspondence cannot be easily made. The intra-sector skill mix may be richer than the inter-sector mix, which is why the economic sector distribution data are of limited value for discussion of allocative issues.

What then do we know about the skill or education composition of public and private sectors? Can we safely draw the conclusion, as is usually done, that the public sector is, not only skill-intensive, but is particularly influential in the labor market for educated workers because of the high proportion of such workers who are publicly employed. Can the skill/education dimension help to isolate which labor markets the public/private distinction is worth being concerned about?

Although we can suggest theoretical answers to these questions, as an empirical matter, we are very much in the dark. Information from the employment and earnings surveys is very limited with respect to any skill dimension. Only the Kenya surveys provide more detailed public/private classification, and only according to occupation categories. A comparison between the public/private occupation structure for Kenyan citizens in 1975 appears in Table III-8. All casual employees are excluded. The public sector with two-thirds of its employees classified above semi-skilled, is clearly more skilled-occupation intensive than is the private sector which has less than 20% of its workers in the above semi-skilled group.

With regard to its influence in different skill markets, it is obvious that the public sector has greater market power over the most skilled group (i.e. the professional and top administrative cadre) employing 70% of Kenyan's in these occupations, relative to its more meager share of 20% of the unskilled
Table III-8: PUBLIC AND PRIVATE SECTOR OCCUPATION DISTRIBUTION FOR KENYAN CITIZENS, 1975

<table>
<thead>
<tr>
<th>Occupation Category</th>
<th>Percent of Total Employment by Sector</th>
<th>Percent of Total Employment by Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Private</td>
</tr>
<tr>
<td>Top Administrators</td>
<td>1.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Professionals</td>
<td>1.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Executive and Managerial</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Technicians, Foremen</td>
<td>4.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Teachers</td>
<td>30.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Secretaries, Typists</td>
<td>1.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Clerks, Book-Keepers, Cashiers</td>
<td>12.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Shop Assistants, Sales</td>
<td>0.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Skilled</td>
<td>12.2</td>
<td>5.1</td>
</tr>
<tr>
<td>Semi-skilled</td>
<td>10.4</td>
<td>10.9</td>
</tr>
<tr>
<td>Unskilled</td>
<td>23.8</td>
<td>71.6</td>
</tr>
</tbody>
</table>

category. The public employment shares for the 11 enumerated occupation
groups presented in Table 111-8 illustrate that these shares are inversely
related to the occupation hierarchy. However, although in some relative
sense public sector employment is more predominant as one goes up the
occupation hierarchy, in an absolute sense the public sector is a major
employer in all occupation categories accounting for at least 50% of all
workers in all but the unskilled category.* That the public sector is
a significant employer in all occupation-specific labor markets complements
our previous findings about the pervasiveness of public employment.

Occupation categorizations are limited because they do not
pick up all the competing groups within a labor market. In fact, by
representing the outcome of individual choices they may disguise the
allocative problems generated by, say, differential wage offers between
public and private bodies. An education/experience profile would be a
less biased cut of the employment structure for these purposes. However,
this sort of information is even more elusive, even for Kenya, than is
occupation data. Even crude estimates of the education mix of the total
public sector relative to the stock of educated citizens cannot be made
from standard national or UNESCO sources. Such ratios would at least lend
some empirical content to the claim that the public sector is the primary
employer of all secondary school graduates. Thus, it may in fact be true
that the public sector is a monopsony or quasi-monopsony employer of

* Recall that these figures only pertain to formal wage employment. Proper
evaluation of all these percentages, and their implications for public
sector influence in specific labor markets especially for the lower skill
occupations, requires attention to the competition offered by informal
sector and unemployed workers.
educated labor, but no standard empirical source* is available to support this claim.

An alternative approach to assessing the skill mix of public employment requires micro data instead of standard government reporting. A random survey of households or individuals permits estimation of the education or experience mix assuming that these questions are asked in conjunction with inquiries about the individual's employer. Such data sets are not especially prevalent in Africa, but one, the 1971 National Urban Mobility Employment and Income Survey of Tanzania (NUMEIST) was made available to us.** This study is a random sample of the urban population in Tanzania. The sample of over 5000 respondents has over 2000 wage earners. For our purpose, a subset of 1500 cases was drawn containing only male African wage earners. Roughly speaking one third of this group was employed by parastatal organizations, another third by the government and the remaining third by the wage paying private sector which includes firms of all sizes. Within the private sector we have also distinguished between employment by private firms versus private individuals which roughly corresponds to a formal/informal sector dichotomy.

The age and education distribution of the respective work forces within the public and private sectors is presented in Table III-9a. Age is intended as a crude proxy for the experience level of workers. Concerning the education variable, Standards 1-8 refer to primary school while Form 1-6 correspond to secondary school education. The public sector is noticeably

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* Standard sources would include census data and national demographic surveys. Neither source is readily available for the decade of the '70s. Since the '70s have been the decade of education in these nations, earlier surveys are poor proxies. Material from the 60's can be combined with enrollment data but absence of school dropout figures make conversion of these flows into stock data a non-trivial procedure. A National Demographic Survey for Kenya was conducted in 1977 but is still unpublished.

** Special thanks are due to Richard Sabot who made this data available.
more skill intensive than the private sector whether one chooses an education or age/experience definition of skill. Of all government and parastatal employees, approximately 30% and 20% respectively have post-primary education. This compares to less than 6% for the entire private sector. Similarly with the respective age profiles, the public sector has a large percentage of its workforce in the 35-49 year old range probably reflecting a more experienced workforce.*

For the purpose of assessing potential market influence the figures in Table III-9b indicate that the public sector employs a minimum of 46% (Standards 1-4) and a maximum of 100% (university) of workers in the formal sector stratified by education. Note that even the minimum value of 40% is a large number and that the public sector's influence in this labor market is likely to be considerable. With respect to age stratification, public employment is the major employer of prime age adult males, ages 20-49, engaging approximately 2/3 of this group. Recall, that since our analysis is restricted to the wage paying sector, these figures do not fully portray the relative position of public demand for specific types of labor.

Whether the picture generated by these data, of public influence in labor markets defined by education and experience levels, can be extrapolated to other African countries is not obvious. In 1971, Tanzania's public sector accounted for 60% of all formal sector employment, which is a representative value for our cross-section. However, Tanzania's more pronounced socialist orientation may generate results which diverge from other national outcomes. At a minimum the Tanzanian results illustrate

* Sabot (1972) presents the occupation distribution of all wage earners in the NUMEIST sample. Similar to the Kenya data and complementary to the age and education results reported above, the public sector's employment structure is biased toward white collar occupations.
### Table III-9a: Male African Age and Education Distribution of Wage Earners in Tanzania (1971)

<table>
<thead>
<tr>
<th>Education</th>
<th>Public Sector</th>
<th>Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government (%)</td>
<td>Parastatals (%)</td>
</tr>
<tr>
<td>None</td>
<td>12.7</td>
<td>21.9</td>
</tr>
<tr>
<td>Standards 1-4</td>
<td>13.8</td>
<td>17.5</td>
</tr>
<tr>
<td>Standards 5-8</td>
<td>43.7</td>
<td>40.3</td>
</tr>
<tr>
<td>Forms 1-4</td>
<td>27.0</td>
<td>18.4</td>
</tr>
<tr>
<td>Form 5-6</td>
<td>1.6</td>
<td>1.8</td>
</tr>
<tr>
<td>University</td>
<td>1.2</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Public Sector</th>
<th>Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>4.0</td>
<td>5.1</td>
</tr>
<tr>
<td>20-34</td>
<td>63.0</td>
<td>58.0</td>
</tr>
<tr>
<td>35-49</td>
<td>25.5</td>
<td>29.4</td>
</tr>
<tr>
<td>&gt;= 50</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Percent of Total Wage Employment: 27.8% (Public), 35.8% (Private), 30.0% (Parastatals), 6.4% (Individuals)

Table III-9b: AGE AND EDUCATION DISTRIBUTION OF MALE AFRICAN WAGE EARNERS IN TANZANIA (1971) Cont’d.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Public</th>
<th>Private</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>60.5</td>
<td>39.5</td>
<td>18.8</td>
</tr>
<tr>
<td>Standards 1-4</td>
<td>46.0</td>
<td>54.0</td>
<td>22.0</td>
</tr>
<tr>
<td>Standards 5-8</td>
<td>63.9</td>
<td>36.1</td>
<td>41.6</td>
</tr>
<tr>
<td>Form 1-4</td>
<td>87.8</td>
<td>12.2</td>
<td>16.1</td>
</tr>
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<td>94.4</td>
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<td>1.2</td>
</tr>
<tr>
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<td>0.0</td>
<td>0.4</td>
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<td></td>
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<td>100.0</td>
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</table>

<table>
<thead>
<tr>
<th>Age</th>
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<th>Public</th>
<th>Private</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>48.4</td>
<td>51.6</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>20-34</td>
<td>61.0</td>
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<td>62.8</td>
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<td>35-49</td>
<td>72.8</td>
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<tr>
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<td>6.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100.00</td>
<td></td>
</tr>
</tbody>
</table>
the quantitative importance of public sector labor demand within this particular nation, and further illustrate the positive correlation between the share of public employment and the skill level of particular labor markets.

G. Summary of Findings on the Structure of Public Employment

The analysis of public employment, where the public sector is usually defined to include all government and parastatal workers, reveals the following:

1) Based on cross-country evidence provided by Keesing (1975), East and West African nations display at least similar if not smaller numbers of public employees holding income per capita and population constant than do the rest of the nations in our sample. This evidence disputes the claim that African public sectors are "too big" at least according to the cross-country results we have generated.

2) Relative to their respective labor forces the public sectors of the nations in our sample employ a small percentage of the total number of workers. The highly agrarian nature of these economies coupled with the minimum amount of public employment in agriculture dictates this outcome. In contrast, the share of public employment out of all wage earners, that is out of all formal or modern employment, is large, ranging from approximately 40-75%.

3) The high proportion of public in formal sector employment has been achieved in most instances through the differentially more rapid growth in public versus private employment. In our sample the annual rate of increase in public employee ranges from 4-11% while private formal employment has grown at anywhere from -5 to +8% per annum. Public sector growth has been achieved both through the nationalization of private enterprises and through incremental job creation.

4) The composition of public employment, excluding the military, reveals a wide dispersion across economic sectors. Characterizing public employment as predominantly service sector employment is not accurate. Depending on the nation involved, 1/3 - 2/3 of all public sector workers may be employed in non-service activities. Looking across sectors, public employment generally represents a significant share of all wage employment in agriculture, construction, transportation, utilities as well as the services.
5) More detailed inspection of the service sector activities public employees are engaged in demonstrates that the specifically defined public administration category consumes a relatively small share of service workers and that this share does not grow over time. Human services — education, health, etc. — represent, in many instances, an equal or even larger percentage of the total. The implication of these findings is that a mushrooming growth of the centralized public bureaucracy is not in evidence.

6) Public employees are distributed across local and central government as well as parastatals. The parastatal form emerged after Independence and has grown into a significant public employer. However, other than its relative size, aspects of parastatal employment vary considerably across nations. The actual activity — everything from education to mining — as well as the modus operandi differ by national setting. What can be concluded is that parastatal employment is not synonymous with secondary sector output nor does it necessarily react and behave similarly to the private sector.

7) Relative to the private formal sector there is far greater stability across economic sectors in public employment.

8) Data on the occupation and/or education/skill profile of public sector employment in Africa is particularly sparse. Even crude tests of the monopsonistic position of public employment of educated (skilled) labor cannot be performed although this monopsonistic position is usually conjectured. Using limited evidence from Kenya and Tanzania the domination of public employment in more skilled categories was established, however, appreciably large percentage shares were also in evidence for lower skilled categories. Given the restriction that these data pertain only to the formal sector, potential competition from informal sectors must be better understood before a behavioral assessment of public sector influence can be made.

The common thread which binds these empirical observations together is that the public sector is a major employer throughout the formal economy. Regardless of the form of a particular disaggregation, the dispersion rather than the concentration of the public sector is evident. Few markets are beyond its influence while most stand to be noticeably affected by public actions.
CHAPTER THREE – NOTES


STATISTICAL SOURCES

Ghana


Kenya


Malawi

Tanzania


Uganda


Zambia

Cross-country Evidence on the Size of the Public Sector

The relationship specified in the scatter diagram of Figure III-1 can be generalized by the following relationship:

(1) \( \frac{P}{N} = f(\frac{GNP}{N}, N) \),

where \( \frac{P}{N} \) = public employees per capita

\( GNP/N \) = GNP per capita

\( N \) = population

Positing a specified functional form yields,

(2) \( \frac{P}{N} = A(\frac{GNP}{N})^{\beta_1}(N)^{\beta_2} \)

Rearranging terms to insure unbiased estimation generates,

(3) \( P = A(\frac{GNP}{N})^{\beta_1}(N)^{\beta_2+1} \)

(3) can be estimated by taking logarithms producing the linear form,

(4) \( \ln P_i = \ln A_o + \beta_1 \ln (\frac{GNP}{N})_i + \beta_2 \ln (N)_i + e_i \)

For \( i = 1, \ldots, n \) nations where \( \beta = \beta_2 + 1 \)

Furthermore, to test whether the African states deviate from the pattern established by the other nations, define,

(5) \( \ln A = \ln a_o + \beta_o D_i \)

Where \( D = 1 \) if nation \( i \) is in Black Africa

\( = 0 \) otherwise.

The estimated coefficients \( \beta_1 \) and \( \beta \), of equation (4), yield public employment elasticities with respect to income levels and population size. In addition, \( \beta_2 \) from equation (2), is equal to \( \beta - 1 \), and can be interpreted as a scale economy parameter. \( \beta_2 > 0 \) implies that as country size
increases the relative size of the public sector increases. Analogously $\beta_2 < 0$ implies negative effects and $\beta_2 = 0$ no scale effects at all. $\beta_0$, the coefficient on the Africa dummy variable indicates a different logarithmic intercept. A significant positive (negative) intercept would simply imply proportionately greater (lower) public employment in the Black African nations relative to the other countries in the sample, holding size and income levels constant. Whether a significant intercept reflects political factors or more structural economic considerations cannot be inferred from this empirical exercise.

Table A-1 presents the results generated by estimating equation (4) with and without the separate African intercept (i.e. equation (5)). All the variables are significant at a 95% confidence level and the equation, overall, has a remarkably good fit. The income elasticities are positive and indicate that for every 10% increase in GNP per capita public employment rises by about 4-5%. The public employment elasticity with respect to population size is not significantly different from 1 (i.e. a 10% increase in population produces a 10% increase in public employment) implying that $\beta_2$ is close to 0 and that no scale effects are present. The estimation including the Africa dummy, column (B), yields a negative and significant coefficient on that variable. We conclude that public employment in Africa, ceteris paribus, is smaller not larger than the estimated cross-country norm. In some relative sense the public sector is therefore not "too big".

There are a number of possible explanations for the lower than "the norm" level of public employment in Africa. One may be purely statistical — namely that local government and all non-centralized public administration
may be undercounted vis-à-vis the other nations in the sample. On a behavioral plane, a negative coefficient may reflect the less urbanized structure of most African economies. Alternatively, from a historical perspective we know that colonial administrations were small and since the African nations are, relatively speaking, newly Independent, it may be the case that most of these nations have not yet "caught up" to the norms of self-governing nation-states. Lastly, consider that a positive coefficient would have supported the view that the more socialist orientation of many African states generates larger public sectors. Note that this view cannot be supported by the evidence offered here.
Table A-1: CROSS-COUNTRY COMPARISONS OF THE SIZE OF THE PUBLIC SECTOR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean*/(S.D.)</th>
<th>(A)</th>
<th>(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln (# Public Employees) ('000)</td>
<td>869 (2599)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln (GNP per capita) (U.S. $ 1972)</td>
<td>682 (1213)</td>
<td>.496</td>
<td>.394</td>
</tr>
<tr>
<td>ln (Population) ('000)</td>
<td>33,012 (103,093)</td>
<td>1.004</td>
<td>.951</td>
</tr>
<tr>
<td>Africa Dummy</td>
<td>.41 (.50)</td>
<td>-</td>
<td>-.475</td>
</tr>
<tr>
<td>Constant</td>
<td>-6.888 (-5.637)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.95 (.96)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Observations</td>
<td>34 (34)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Keesing (1975).

* All means and standard deviations are of the actual not logged values.

** Standard errors appear in parentheses.
EMPLOYMENT GROWTH RATES REGRESSION STATISTICS

Ghana: In (Public)\(_t\) = 7.337 + 0.049t
\((0.049)(0.005)\) \(R^2 = .87\)
In (Private)\(_t\) = 7.309 - 0.022t
\((0.044)(0.005)\) \(R^2 = .63\)
In (Total)\(_t\) = 7.999 + 0.023t
\((0.029)(0.003)\) \(R^2 = .81\)

Kenya: In (Public)\(_t\) = 7.355 + 0.060t
\((0.011)(0.001)\) \(R^2 = .99\)
In (Private)\(_t\) = 8.168 + 0.024t
\((0.025)(0.003)\) \(R^2 = .84\)
In (Total)\(_t\) = 8.531 + 0.037t
\((0.018)(0.002)\) \(R^2 = .96\)

Malawi: In (Public)\(_t\) = 6.198 + 0.090t
\((0.038)(0.007)\) \(R^2 = .96\)
In (Private)\(_t\) = 6.636 + 0.080t
\((0.031)(0.006)\) \(R^2 = .97\)
In (Total)\(_t\) = 7.119 + 0.086t
\((0.012)(0.002)\) \(R^2 = .99\)

Tanzania: In (Public)\(_t\) = 6.702 + 0.107t
\((0.052)(0.007)\) \(R^2 = .96\)
In (Private)\(_t\) = 7.893 - 0.48t
\((0.056)(0.007)\) \(R^2 = .81\)
In (Total)\(_t\) = 8.078 + 0.023t
\((0.051)(0.006)\) \(R^2 = .54\)

Uganda: In (Public)\(_t\) = 11.287 + 0.040t
\((0.053)(0.009)\) \(R^2 = .72\)
In (Private)\(_t\) = 11.632 + 0.048t
\((0.029)(0.005)\) \(R^2 = .93\)
In (Total)\(_t\) = 12.168 + 0.045t
\((0.030)(0.005)\) \(R^2 = .91\)
CHAPTER FOUR - EARNINGS IN THE PUBLIC SECTOR

Analogous to the view that the public sectors of many African nations are "too big" is the impression that their governments' salaries are "too high." This impression, along with other stylized facts concerning public employment, may be correct, but if we hope to better understand the process of wage determination in the public sector, claims such as this need to be substantiated. Available data are limited, nonetheless, this chapter will consider a number of public sector wage issues in the light of existing evidence. We proceed by first reviewing the available data sources. Section B then offers an interpretation of the empirical trends in relation to a set of stylized wage propositions concerning public employment. Section C summarizes the findings.

A. Data and Definitions

Unless otherwise noted, the earnings data are derived from the national employment and earnings surveys cited in the previous chapter. Specifically, aggregate trends on earnings in the public, private formal and agricultural wage paying sectors are derived for Ghana (1956-72), Kenya (1961-77), and Tanzania (1963-74). In addition, individual wage data are available for Tanzania from Sabot's NUMEIST survey. Lastly, a time series of legislated salary scales for civil servants was assembled for Sierra Leone. This series is derived from annual estimates of recurrent expenditures*.

* This information was collected during the author's participation in a World Bank economic mission to Sierra Leone. */ This information would not have been easy to compile without a site visit. For this reason, similar times series data have not been compiled for other nations.
It was hoped that information would be available from civil service employment lists and from the final reports of national public sector salary review commissions.* Unfortunately, both of these potential sources are either not readily available or not particularly informative as far as statistical data are concerned. The salary review reports do offer insights into the political economy of wage policy issues and shed light on the forces influencing decision-makers. However, considerable reading "between-the-lines" is required to interpret these reports and as such they are likely to be more useful in country specific research work than in cross-country analyses.

Data on earnings from the employment and earnings surveys, unless otherwise noted, refer to monthly rated African employees. Casual workers, non-African citizens and expatriates are not included in the earnings series. Earnings are gross of taxes and tend to include all wage and salary payments as well as bonuses and cash allowances. Imputed values for in-kind income (this would include government provided housing) are only added to cash earnings in Kenya. A high degree of comparability in the definition of earnings exists within each country over time. Greater disparities appear across nations and constrain cross-section comparisons with regard to absolute levels of compensation. Lastly, no evidence on wages, independent from earnings, could be assembled.

* Some of the more notable of these are the Mwanakarwe Commission Report (Zambia, 1975), the Ndegwa Report (Kenya, 1972) and the Udoji Commission's Review (Nigeria, 1975).
The available figures probably underrepresent a total earnings concept since the fringes and perquisites of public employment are notoriously difficult to capture. A more complete analysis of inter-as well as intra-sector wage behavior would certainly require more detailed accounting of these aspects of worker remuneration. For our purposes, the broad relative trends we wish to consider are not likely to be seriously affected by these imperfections in the data.

B. Public Sector Earnings Trends

A reading of both research and operational documents suggests that the following views are often held concerning public employment in Africa:

(i) The public sector is more skill-intensive than the private formal sector and, therefore, the average public wage will be greater than the average private wage. However, even if skill differences are accounted for, a positive differential will exist between the two sectors because the public sector acts as a "wage leader."* The government's high wage policies distort urban labor markets and cause wages to rise throughout the formal economy.

* The "wage leadership" concept should not be considered as a well defined theory. It has its origins in discussions of the impact of trade union agreements on industrial wages in the U.S. 2/ The notion has since been employed in discussions of wage determination in the urban labor markets of developing countries. Governments, multinationals and trade unions are seen as raising wages above competitive levels. Once these wages are set, it is hypothesized that other urban employers behave as factor price takers and compensate their employees according to these "prevailing" wage rates. The resulting high wage orientation of the formal economy is then thought to exacerbate the urban/rural income gap, encourage migration and lead to lower levels of employment generation than would be generated by lower wages. The wage leadership scenario is obviously predicated upon many, as yet untested, assumptions. For our purposes we will assume that it pertains to movements in real not nominal wages. We will consider whether any of its predictions are found to be consistent with the wage outcomes that we observe. (An interesting development of the wage leadership concept appears in Malcolm McPherson's, "Wage Leadership and Zambia's Mining Sector — Some Evidence," (HIID Development Discussion Paper #43, 10/78.))
(ii) The high wage policies of African nations have their roots in the post-colonial era. The period of Independence was accompanied by revolutionary changes in wages as politically motivated salaries were legislated, in essence, overnight.

(iii) Although, on average, public sector salaries are high the pattern of intra-public sector wage determination reveals a tendency toward internal compression in the sector's own wage structure. Such policies are motivated by equity concerns and may result, relative to the private sector, in high-paying unskilled jobs and low-paying senior positions.

(iv) Within the public sector there is presumed to be a differentially greater orientation toward profit making on the part of parastatal organizations. This orientation generates wages which bear a stronger relationship to economic, i.e. productivity, criteria than is the case in the civil service.

It is important to note that one would be hard pressed to find any one document which clearly states these four propositions.* Nonetheless, acknowledging that they may oversimplify prevailing opinions, these statements are useful in interpreting the available evidence. Each of the propositions will be more fully developed below in conjunction with our discussion of the observed wage trends.

(i) High Wage Policies, Wage Leadership and Aggregate Trends

Turning first to the time series trends on real earnings** in the public, private formal and agricultural wage labor sectors for Ghana,

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* For a discussion of some of these issues see Edwards (1974) and Zerg (1967).

** Real earnings were calculated by dividing nominal wage bill data by employment levels and then adjusting according to national consumer price indices. Annex IV-I provides some further details on the coverage of the series.
Kenya and Tanzania respectively, we can assess proposition (i) concerning the "high wage" position of the public sector. The empirical trends are charted in the graphs below. The major liability of the trends rests in their aggregation across skill classes. By compressing the entire wage structure of a particular sector into one arithmetic mean, the impact of relative changes in skill mix, either over time or across sectors, cannot be divorced from what we are most interested in determining, namely differences in the real wage levels of homogeneous groups of workers. This liability represents a major limitation of the aggregate data. By relying on the assumption that radical changes in skill composition do not occur from year to year, these data can still offer insight into national processes of wage determination.

Inspecting the relative wage position of the public sector in all three nations, we first note that the average government worker's wage is not always superior to that of the average employee in the formal private non-agricultural sector. In even as small a sample as this a diversity of outcomes is apparent. In Kenya, the series on African wage earners (1961-72)* probably best illustrates the notion that government

---

* Starting in 1972 the Kenyan Central Statistical Office initiated a new wage series which includes all Kenyan citizens. The subsequent incorporation of Europeans and Asians reverses the relative position of public and private remuneration reflecting the concentration of non-African citizens in high-paying non-public jobs. Interpretation of the post 1972 earnings trends is thus complicated by an inability to sort out the ethnic and racial characteristics of the relevant groups.

For the year 1972 itself, it is possible to estimate the relative wage position of non-Africans to Africans. Both earnings series are available for this one year as is information on the number of workers by ethnic status. Within the public sector the average non-African citizen earned over 4 times what the average African earned. The differential is even greater in the private sector. These differences, although certainly in the correct direction, appear rather large and may suggest other, non-specified, differences between the two series. Caution certainly is required in making any further comparisons between these series.
wages steadily increase, possibly setting "standards" for the private formal sector which lags behind.

Although the Kenyan data appear to conform with the proposition that the public sector is a high wage sector, it would certainly be premature to conclude that the evidence confirms a wage leadership scenario. Rising real earnings are likely to reflect the outcome of Kenya's known commitment to education which produced an upgrading of skills within the modern sector. The wedge between public and private sector may also be explained by differences in skill composition. The laissez-faire orientation of the Kenyan government, especially vis-a-vis most other African nations, has made the sectoral composition of the public sector stand in sharp contrast to that of the private sector (see Table III-4, 5). As a result the observed public/private wage differential may be largely explained by differences in occupational mix between sectors.

The available disaggregated data on Kenyan earnings by employer status do not maintain the existence of a wage premium to public employees. Table IV-I suggests that for men and women employed as either secretaries

Table IV-I: AVERAGE MONTHLY WAGES BY OCCUPATION FOR MEN AND WOMEN ACCORDING TO EMPLOYER (KENYA, 1972 and 1976)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretaries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>784</td>
<td>774</td>
<td>1055</td>
<td>1289</td>
</tr>
<tr>
<td>Women</td>
<td>864</td>
<td>1270</td>
<td>1260</td>
<td>1722</td>
</tr>
<tr>
<td>Clerks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>707</td>
<td>799</td>
<td>1127</td>
<td>1104</td>
</tr>
<tr>
<td>Women</td>
<td>627</td>
<td>917</td>
<td>1113</td>
<td>1148</td>
</tr>
</tbody>
</table>

or clerks in either 1972 or 1976, the public sector did not systematically offer a wage advantage. Women, in fact, did better in the private sector for both years while male experience varied both by occupation and year.*

Returning to the aggregate evidence, the Ghanaian and Tanzanian trends on average real earnings by sector are in marked contrast to the Kenyan series. In Ghana, the 3 years following Independence in 1957 were marked by a growing gap in earnings between the public and formal private sectors. From 1961-66 real earnings fell and the earnings differential across the formal economy was negligible. After 1966, the last year of the Nkrumah regime, average public wages rapidly diverged from and fell below increasing real private sector earnings.

These trends suggest that post-Independence wage policy may have promoted the public sector as a high-wage sector. However, this relative position in the formal economy was not sustained. After 1960 it is difficult to argue that the public sector was both more skill-intensive and a "wage leader." The observed trends suggest that at least one of these two premises is unfounded. If we assume that the public sector employed relatively more skilled workers, then the aggregate earnings series underestimate the decline in the public sector's already inferior real earnings positions. Alternatively, in order to substantiate a "wage leadership" notion, radical changes would have had to occur in the inter-sector

* The Kenyan government itself expressed the view that public wages do not lead private compensation. The 1971 Ndegwa report comments, "We have also had in mind that whatever action Government may decide to take as to the remuneration of the public sector may influence the attitude of the private sector with regard to wages and salaries; but on this point we consider that the evidence conclusively points to the fact that Government seldom if ever takes the lead." 3/
skill-mix. No independent evidence of such changes exists.*

When the employment trend data from the previous chapter are incorporated into this earnings analysis, one notices that during the post-1961 period public sector employment growth, especially in the services, was extremely rapid and private employment was going through a period of stagnation and decline. During this period, although public demand for labor was growing rapidly, real wages were falling absolutely and eventually relatively. The combined employment and earnings trends are consistent with the view that supply-side pressures may have dominated the wage determination process and, furthermore, that during this period employment not wage objectives may have been the driving force behind public policies.

What the Ghanaian results also help to demonstrate is that the real wage position of public servants does not always increase. Standing in sharp contrast to the Kenyan trend, Ghana reveals considerable periods of erosion in the purchasing power of government salaries.

Tanzania, on the other hand, displays yet another alternative — general stagnation in public sector real earnings. The Tanzanian results also complement the Ghanaian results in that average public sector wages are not always superior to average private wages.**

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* The employment data of the previous chapter do indicate that after 1966 private formal employment became more manufacturing intensive while employment in the commerce sector fell from earlier levels. These changes may correspond to an increase in the relative skill-intensity of the private sector but are unlikely to fully account for the growing average public/private earnings differential.

** Micro evidence on Tanzania for a single year, 1971, will be discussed in detail below.
As we have tried to emphasize, the aggregate earnings series are limited because skill differences cannot be fully accounted for. What we can safely conclude is that average nominal earnings have steadily increased in all of the 3 nations under consideration (see Appendix of Illustrations for a depiction of the nominal trends), while real earnings have shown a different intertemporal pattern for each nation. No definitive conclusions can be reached on whether the public sector is a high wage sector relative to the rest of the economy. In the Ghanaian and Tanzanian cases it is quite clear that the public sector cannot be both more skill-intensive and better paying than the private sector. As for Kenya, that nation consistently portrays African public servants receiving, on average, higher compensation than the average private employee in the formal sector. However, even in this case, the result is not upheld by the limited disaggregated data which are available. Once skill differences are accounted for no clear wage premium by employer is evident.

Although earnings trends within the formal sector provide one means of "testing" for "wage leadership," a growing differential between the entire formal sector and the rest of the economy is likely to be an even more useful indicator. In order to rigorously test for this differential a representative wage series on the informal sector is needed. This series should reflect either (or both) rural returns to labor or earnings in urban informal activities. As an alternative to either of these, the employment and earnings surveys permit assembly of an agricultural wage labor earnings trend. Depending upon the nation involved this series may include public and/or private employees classified as working in the agricultural sector. Such workers may range from employees in national game
parks to hired plantation labor. Given this range in coverage the assembled series (portrayed in the 3 precedings graphs) may be imperfect proxies of actual informal sector earnings.

If we examine the available series we again note a sharp difference in outcomes. Table IV-2 summarizes the data by presenting the percent average earnings for agricultural wage labor is of public sector earnings. Ghana displays a marked cyclical pattern with no apparent secular trend. This may be a statistical artifact. Agricultural workers in this series include both public and private male employees with publicly employed labor comprising 70–90% of the total. These publicly employed agricultural workers are likely to be compensated according to civil service wage scales which may account for the cyclical pattern of their relative wages.

The Kenyan series more clearly present a growing wedge between the public and agricultural sectors.* At Independence, mean agricultural wages were a third of average public servant compensation. Within a decade the percentage had fallen to approximately one quarter. These results are consistent with both changing skill intensities in the respective sectors as well as with the institutional model of "wage leadership." More evidence is still required to discriminate between these alternatives.

Lastly, the Tanzanian results show even less of a pronounced trend. In fact, some of the erratic movements, especially during the last few years of the series, cast doubt on the quality of the information over those years. No firm conclusions can be drawn on the basis of these data.

* For Kenya the agricultural wage series refers only to private sector employees.
Table IV-2: RELATIVE EARNINGS BETWEEN PUBLIC EMPLOYEES AND AGRICULTURAL WAGE LABOR (% AGRICULTURAL EARNINGS ARE OF PUBLIC SECTOR EARNINGS)

<table>
<thead>
<tr>
<th>Year</th>
<th>Ghana</th>
<th>Kenya</th>
<th>Tanzania</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>70.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1957</td>
<td>70.5*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1958</td>
<td>69.3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1959</td>
<td>72.5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1960</td>
<td>73.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1961</td>
<td>72.9</td>
<td>34.5</td>
<td>-*</td>
</tr>
<tr>
<td>1962</td>
<td>72.8</td>
<td>32.2</td>
<td>-</td>
</tr>
<tr>
<td>1963</td>
<td>69.0</td>
<td>33.1*</td>
<td>44.5</td>
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<tr>
<td>1964</td>
<td>64.9</td>
<td>28.1</td>
<td>48.2</td>
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<tr>
<td>1966</td>
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<td>1967</td>
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</tr>
<tr>
<td>1968</td>
<td>67.0</td>
<td>25.1</td>
<td>44.5</td>
</tr>
<tr>
<td>1969</td>
<td>66.1</td>
<td>25.5</td>
<td>43.7</td>
</tr>
<tr>
<td>1970</td>
<td>55.9</td>
<td>25.3</td>
<td>44.8</td>
</tr>
<tr>
<td>1971</td>
<td>70.6</td>
<td>24.4</td>
<td>42.7</td>
</tr>
<tr>
<td>1972</td>
<td>67.9</td>
<td>29.2</td>
<td>(27.1)**</td>
</tr>
<tr>
<td>1973</td>
<td>-</td>
<td>(23.8)</td>
<td>40.9</td>
</tr>
<tr>
<td>1974</td>
<td>-</td>
<td>(23.8)</td>
<td>47.9</td>
</tr>
<tr>
<td>1975</td>
<td>-</td>
<td>(25.2)</td>
<td>-</td>
</tr>
<tr>
<td>1976</td>
<td>-</td>
<td>(24.6)</td>
<td>-</td>
</tr>
<tr>
<td>1977</td>
<td>-</td>
<td>(22.9)</td>
<td>-</td>
</tr>
</tbody>
</table>

* Year of National Independence.

** Series in parentheses is based on inclusion of all Kenyan citizens not just Africans.

Source: Employment and Earnings Surveys
In summary, as we have already noted, the wage leadership concept is not a well-defined theory. If it is interpreted as a model of real wage determination certain predictions concerning wage differentials seem to follow. The available evidence is not overwhelmingly consistent with these predictions, implying that the wage leadership notion is unlikely to represent a "universal" model of wage determination in the modern sector.*

(ii) The Legacy of the Colonial Era

As has already been noted, colonial administrations became national governments almost overnight, with salaries, other conditions of employment, and the number of public servants being strongly influenced by political expediencies rather than by the more evolutionary forces of market behavior. What residual effect these politically motivated decisions have had on subsequent developments within the public sector, the labor market and the economy as a whole is of course open to debate.

In general, colonial administrations were small**, including both expatriates and African nationals. Salary differentials between

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* An alternative interpretation of wage leadership might be in terms of nominal wages. Under this alternative a model of market behavior would need to be assembled whereby wage push inflation was endogenous and real wage outcomes throughout the formal economy were a function of public salary policies. We leave this and other possible interpretations of wage leadership for future research.

** Bennel (1979) notes,

It is quite extraordinary that such a vast colonial empire could be administered as efficiently as it was by such a tiny elite of British officials. The administrative branch, for example, formed the backbone of each colonial service and yet there were never more than 1500 administrative officials in anglophone Africa at the zenith of colonial rule....
Europeans and African were large, justified in part by the need to attract expatriate labor. Europeans were clearly thought to belong to a separate labor market and remuneration packages responded to European, not African factor prices. After Independence, as Sabot notes in his discussion on Tanzania, "The colonial wage and salary structures were not dismantled... since to do away with what many people regarded as the fruits of Independence would have been politically untenable." The colonial legacy may therefore have imparted a distorted public sector salary structure which did not reflect the scarcity values of most African public employees.

Whatever empirical evidence is available from our aggregate earnings series appears to substantiate this view. Focusing on public/private differentials in the formal sector, we can contrast the immediate post-Independence period with later years. Using the same data as appears in the 3 graphs above, Table IV-3 presents the percent public earnings are of private formal earnings for the three nations we have been discussing. For Ghana and Kenya our series begin before national Independence was achieved. In both countries the years immediately following Independence reveal the highest public/private earnings gap for the entire series. These results are certainly consistent with our hypothesis on the impact on wage structure of the colonial legacy. It is difficult to believe that skill differences could solely account for this gap. In Tanzania, our series begins two years after Independence and as such we cannot examine the immediate relative wage changes which followed the initial Africanization of the public sector.
Table IV-3: PUBLIC/PRIVATE RELATIVE EARNINGS DIFFERENTIALS IN THE FORMAL SECTOR
(Public Earnings as a % of Private Formal Earnings)

<table>
<thead>
<tr>
<th>Year</th>
<th>Ghana</th>
<th>Kenya</th>
<th>Tanzania</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>101.4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1957</td>
<td>102.5*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1958</td>
<td>112.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1959</td>
<td>107.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1960</td>
<td>107.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1961</td>
<td>98.7</td>
<td>108.7</td>
<td>-*</td>
</tr>
<tr>
<td>1962</td>
<td>102.9</td>
<td>110.0</td>
<td>-</td>
</tr>
<tr>
<td>1963</td>
<td>99.7</td>
<td>109.4*</td>
<td>91.8</td>
</tr>
<tr>
<td>1964</td>
<td>102.9</td>
<td>138.0</td>
<td>83.9</td>
</tr>
<tr>
<td>1965</td>
<td>96.5</td>
<td>153.4</td>
<td>86.3</td>
</tr>
<tr>
<td>1966</td>
<td>95.7</td>
<td>123.6</td>
<td>85.0</td>
</tr>
<tr>
<td>1967</td>
<td>87.5</td>
<td>128.7</td>
<td>92.3</td>
</tr>
<tr>
<td>1968</td>
<td>85.0</td>
<td>117.3</td>
<td>91.8</td>
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<tr>
<td>1969</td>
<td>85.7</td>
<td>113.0</td>
<td>92.1</td>
</tr>
<tr>
<td>1970</td>
<td>82.6</td>
<td>109.9</td>
<td>91.3</td>
</tr>
<tr>
<td>1971</td>
<td>71.8</td>
<td>115.9</td>
<td>99.4</td>
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<tr>
<td>1972</td>
<td>66.2</td>
<td>106.1</td>
<td>(91.8)</td>
</tr>
<tr>
<td>1973</td>
<td>-</td>
<td>-</td>
<td>(98.2)</td>
</tr>
<tr>
<td>1974</td>
<td>-</td>
<td>-</td>
<td>(93.9)</td>
</tr>
<tr>
<td>1975</td>
<td>-</td>
<td>-</td>
<td>(96.8)</td>
</tr>
<tr>
<td>1976</td>
<td>-</td>
<td>-</td>
<td>(106.6)</td>
</tr>
<tr>
<td>1977</td>
<td>-</td>
<td>-</td>
<td>(103.3)</td>
</tr>
</tbody>
</table>

* Year of National Independence

** Series in parentheses is based on inclusion of all Kenyan citizens not just Africans.

Source: Employment and Earnings Surveys.
What the long run impact of the distortions generated by the colonial and Independence eras has been is unclear. Market forces may have eroded these wage premiums or, alternatively, the legacy of the colonial period may continue to influence public sector pay policy. At a minimum, the data suggest that after Independence governments faced some distortions in their internal wage structure and that overtime some type of adjustment process undoubtedly occurred.*

(iii) Compression of the Public Sector Wage Structure

The reports of public sector salary review commissions often state that wage scales should reflect government equity objectives. Specifically, reductions in wage differentials between the highest and lowest paid positions in the civil service should be a policy goal. The implicit cost of such proposals in terms of potential efficiency losses are, at times, recognized but appear to be considered as secondary problems.

Although often stated as an objective, there exists little evidence that such policies are enacted and even less evidence on their subsequent impact. Table IV-4 presents the legislated salary scales of various occupations within Sierra Leone's civil service and illustrates that compression in the wage structure has occurred. The index numbers in parentheses illustrate the secular trend in each occupation's salary level expressed in real terms. For Permanent Secretaries, the highest paying job in the civil service, there has been a steady decline in real earnings during the 1970's resulting in a 1979-80 salary which is equivalent to half of the real salary of the fiscal year 1970-71. At the opposite end of the occupation ladder, messengers have experienced some cyclical

* For an interesting discussion of the impact of the colonial legacy on wages and employment in Africa see John Weeks (1971), "Wage Policy and the Colonial Legacy — A Comparative study."
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent Secretary</td>
<td>4,700</td>
<td>4,700</td>
<td>4,700</td>
<td>4,818</td>
<td>4,818</td>
<td>5,550</td>
<td>5,550</td>
<td>5,550</td>
<td>6,383</td>
<td>6,383</td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(93)</td>
<td>(82)</td>
<td>(78)</td>
<td>(67)</td>
<td>(60)</td>
<td>(64)</td>
<td>(51)</td>
<td></td>
</tr>
<tr>
<td>Deputy Secretary</td>
<td>4,300</td>
<td>4,300</td>
<td>4,408</td>
<td>4,408</td>
<td>4,408</td>
<td>5,290</td>
<td>5,290</td>
<td>5,290</td>
<td>5,290</td>
<td>6,084</td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(99)</td>
<td>(93)</td>
<td>(82)</td>
<td>(70)</td>
<td>(70)</td>
<td>(62)</td>
<td>(58)</td>
<td>(53)</td>
<td></td>
</tr>
<tr>
<td>Administrative Officers</td>
<td>1,368</td>
<td>1,368</td>
<td>1,436</td>
<td>1,436</td>
<td>1,795</td>
<td>1,795</td>
<td>1,795</td>
<td>1,795</td>
<td>2,154</td>
<td></td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(84)</td>
<td>(87)</td>
<td>(74)</td>
<td>(67)</td>
<td>(62)</td>
<td>(59)</td>
<td>(59)</td>
<td></td>
</tr>
<tr>
<td>Technical &amp; Executive Officers</td>
<td>1,272</td>
<td>1,272</td>
<td>1,336</td>
<td>1,336</td>
<td>1,670</td>
<td>1,670</td>
<td>1,670</td>
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<td>(101)</td>
<td>(96)</td>
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<td>(74)</td>
<td>(68)</td>
<td>(62)</td>
<td>(59)</td>
<td></td>
</tr>
<tr>
<td>Clerical</td>
<td>336</td>
<td>336</td>
<td>336</td>
<td>378</td>
<td>378</td>
<td>378</td>
<td>504</td>
<td>504</td>
<td>504</td>
<td>630</td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(103)</td>
<td>(94)</td>
<td>(75)</td>
<td>(85)</td>
<td>(76)</td>
<td>(72)</td>
<td>(70)</td>
<td>(70)</td>
</tr>
<tr>
<td>Unqualified Clerical</td>
<td>288</td>
<td>288</td>
<td>288</td>
<td>324</td>
<td>324</td>
<td>324</td>
<td>432</td>
<td>432</td>
<td>432</td>
<td>540</td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(103)</td>
<td>(90)</td>
<td>(75)</td>
<td>(85)</td>
<td>(76)</td>
<td>(71)</td>
<td>(70)</td>
<td>(70)</td>
</tr>
<tr>
<td>Cleaners</td>
<td>228</td>
<td>228</td>
<td>228</td>
<td>237</td>
<td>237</td>
<td>237</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>540</td>
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<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(103)</td>
<td>(90)</td>
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<td>(90)</td>
<td>(80)</td>
<td>(73)</td>
<td>(73)</td>
<td>(70)</td>
</tr>
<tr>
<td>Messengers</td>
<td>216</td>
<td>216</td>
<td>216</td>
<td>243</td>
<td>243</td>
<td>243</td>
<td>360</td>
<td>360</td>
<td>360</td>
<td>540</td>
</tr>
<tr>
<td>(100)</td>
<td>(102)</td>
<td>(96)</td>
<td>(103)</td>
<td>(90)</td>
<td>(73)</td>
<td>(95)</td>
<td>(84)</td>
<td>(79)</td>
<td>(73)</td>
<td>(70)</td>
</tr>
</tbody>
</table>

1/ Index number of civil service salaries by grade deflated by Freetown CPI.

Source: Sierra Leone Government, Estimates of Revenue and Expenditures.
erosion in real earnings but finished the decade only slightly below their 1970-71 level of compensation. Inspecting the intermediary occupations the pattern remains the same -- reductions in real earnings are positively related to the occupation/earnings hierarchy.*

What the Sierra Leone evidence suggests is that compression in the civil service salary structure has occurred.** This is known to have been a stated policy objective of the government. What its' impact has been on either the performance of the civil service or on outcomes in specific occupational labor markets is not known. Anecdotal evidence indicates that rapid turnover in senior positions has been prevalent, in part, because superior salaries are available elsewhere, most notably in public enterprises. Whether or not queuing occurs at the lower end of the occupation ladder is not known but it may be a consequence of the government's wage policy.

The Sierra Leonean evidence also illustrates the substantial erosion in real earnings which may characterize public employment. In a declining economy, public servants may bear the brunt of the nation's economic misfortunes. Similarly, in a growing economy, such as Nigeria, it is hypothesized that public servants reap many of the benefits of rapid growth.

* Another means of depicting the compression in the wage structure is to compute changes in the relative dispersion of public salaries. Ideally a weighted index of wages, where the weights reflect employment shares, could be used to assess such changes. However, lacking these employment weights we instead compute the coefficient of variation for the depicted occupational salaries and find that it declines by 12% between 1970-80.

** It is important to recognize that this conclusion is based on legislated salary scales. Since the figures do not reflect actual compensation we may be overstating the decline in earnings of a given individual. In fact, given the nature of wage determination in the public sector, adjustments on the occupation side may be the main vector for achieving salary promotions. Future work needs to more thoroughly link the determinants of occupational placement within the public sector with earnings, if a true understanding of worker compensation is to be achieved.
(iv) Parastatal Versus Civil Service Compensation *

Previously, we raised the hypothesis that parastatals pay different salaries than the civil service and that these salaries were likely to bear a stronger relationship to economic criteria because of the presumed greater degree of market orientation in public enterprises. Given our earlier results on parastatal employment trends by economic sector (see Table III-7), there appears to be little a priori evidence that such activities, on whole, should be more geared to the market place. Public enterprises are neither predominantly engaged in manufacturing nor in any other activity characterized by product markets which are notably competitive. Therefore, parastatals should not necessarily be expected to be more or less market oriented than the rest of the public sector. By implication, if wage differentials do exist between parastatal and civil service employees, these differentials should not be interpreted in terms of who is paying the market wage.

Inspection of wage evidence on intra-public sector employment for Tanzania reveals some striking trends. The results in Table IV-5 are based on the 1971 household survey (NUMEIST) already referred to. The survey permits identification of four categories of employer for male African wage employees, namely — private firms, private individuals, government and parastatals. Table IV-5 presents mean monthly earnings in 1971 by occupation for 3 of the 4 employer groups. Employment by private individuals was excluded because it refers primarily to domestics. These data have a marked advantage over the aggregate earnings series in that occupational categorization permits some sorting out of the skill mix problem.

* In Chapter Three we indicated that by the mid-1970s parastatal employment constituted approximately one third of all public employment for all the nations in our sample. For this reason alone, this topic is of more than just academic interest.
Table IV-5: OCCUPATIONAL EARNINGS* IN TANZANIA FOR MALE AFRICAN EMPLOYEES BY TYPE OF EMPLOYER (1971)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Private Firm</th>
<th>Government</th>
<th>Parastatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. White Collar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managerial***</td>
<td>416**</td>
<td>1098</td>
<td>1782</td>
</tr>
<tr>
<td>Semi-Technical</td>
<td>-</td>
<td>603</td>
<td>672</td>
</tr>
<tr>
<td>Clerks, Typists</td>
<td>409</td>
<td>375</td>
<td>530</td>
</tr>
<tr>
<td>II. Production Related</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Craftsmen</td>
<td>264</td>
<td>262</td>
<td>315</td>
</tr>
<tr>
<td>Drivers</td>
<td>327</td>
<td>329</td>
<td>385</td>
</tr>
<tr>
<td>Machine Operators</td>
<td>232</td>
<td>310</td>
<td>308</td>
</tr>
<tr>
<td>Skilled</td>
<td>315</td>
<td>358</td>
<td>379</td>
</tr>
<tr>
<td>III. Unskilled</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Messengers</td>
<td>216</td>
<td>208</td>
<td>243</td>
</tr>
<tr>
<td>Porters</td>
<td>293</td>
<td>213</td>
<td>270</td>
</tr>
<tr>
<td>Watchmen</td>
<td>200</td>
<td>188</td>
<td>302</td>
</tr>
<tr>
<td>Other Unskilled</td>
<td>220</td>
<td>214</td>
<td>301</td>
</tr>
<tr>
<td>IV. All Occupations</td>
<td>263</td>
<td>396</td>
<td>409</td>
</tr>
</tbody>
</table>

Source: R. Sabot, NUMEIST (1972)

* Earnings are expressed in Shillings/month and are net of fringe benefits.

** All earnings represent the mean value of a given occupation/employer cell. The reported occupations had a minimum of 8 employees per occupation/employer cell.

*** The disaggregated occupation categories are representative samples of the given occupation category and, therefore, their weighted average will not precisely equal the aggregated categories mean value.
First consider line IV of the table which presents mean wages for all occupations by employer. On average, parastatal compensation is marginally higher than government earnings both of which are significantly higher than private sector remuneration.* This is the anticipated result given the presumed higher skill-intensity of public employment. However, once we disaggregate by occupation, thereby standardizing for some of the variance in skill composition, parastatal earnings continue to dominate the other two sectors. In fact, looking across the disaggregated occupation categories parastatal earnings are greater than government earnings in 10 of 11 cases and greater than private earnings in all cases. (Government salaries are superior to private compensation for exactly half of the occupation cells.)

These data support the hypothesis that within the public sector parastatals offer higher salaries. The only qualification to this conclusion is that higher parastatal earnings by occupation may, in part, be due to differences in intra-occupation skill-intensity across employers. However, the consistency of the parastatal wage premium across all occupations argues against the differential being solely due to cross-employer skill differences. The sizeable wage premium accruing to even the most unskilled

* Recall that these data are household data and therefore the coverage of the private sector is not restricted to firms above a given size. Relative to the employment and earnings survey, NUMEIST coverage of the private sector is more complete. This difference is evident if one compares the NUMEIST aggregate earnings differential reported in Table IV-5 with the 1971 aggregate public/private formal differential appearing in Table IV-4. Based on the employment and earnings data, average public earnings combining both government and parastatal are 99.4% of private formal earnings in 1971. NUMEIST, which represents all male employees, shows this percentage to be 153%. Differential coverage of the private sector is likely to substantially account for this difference.
occupations especially weakens this explanation.*

Having established the existence of a parastatal wage premium for relatively homogenous workers our next task is to explain it. Proposition (iv) suggested that a greater degree of market orientation by public enterprises would explain existing wage differences between employer groups. Once again the wage premium of even the most unskilled parastatal employees argues against this explanation. For this group, markets should be working to eliminate not maintain differentials due to extreme supply side competition for jobs.

An alternative set of explanations for wage benefits in the parastatal sector cite ability-to-pay arguments. In essence, parastatals tend to possess some form of monopoly advantage in their respective product markets. This advantage may be directly legislated — e.g. utilities — or indirectly mandated through trade or credit policy. It may also derive from nationalization policies which concentrate on large private sector firms which may inherently embody some 'natural' monopoly power. Given the existence of a monopoly advantage and given the absence of shareholders, monopoly rents may be redistributed as higher wages. The lack as opposed to the presence of the disciplining influence of a competitive market may contribute to the high wage outcome of the public enterprise sector.

* These conclusions are further strengthened by results obtained from a multiple regression of earnings on worker characteristics including education, experience, location and employer type. The results clearly indicate that parastatal employers, ceteris paribus, earn significantly more than their government and private sector counterparts. These results along with a more rigorous analysis of wage differentials in Tanzania are presented in a forthcoming paper by Lindauer and Sabot (1981).
The argument above is raised as a possible explanation of intra-
public sector wage differences. Other explanations are undoubtedly available
and future research needs to examine this issue more closely. The
existing wage relationships are likely to drain the civil service's better
employees away from government work into public enterprises. A demoralized
and less efficient civil service may be the result. Consideration needs
to be given to what the benefits and costs would be of effectively 'tying'
parastatal salaries to civil service salary scales. In conclusion, the
existence of government/parastatal wage differences in Tanzania has been
confirmed, however, the mechanisms which generate this outcome are not
fully understood.

C. Summary of Findings

Although there exist many stylized impressions concerning trends
in the absolute and relative levels of public sector salaries in developing
countries, little empirical evidence has previously been assembled to substantiate these
claims. Based on a limited amount of data we draw the following conclusions:

(1) Aggregate earnings series suggest that the public sector
does not always appear as the leading wage sector within the formal economy.
In Ghana and Tanzania the evidence indicates that the public sector can not
be both more skill-intensive and better paying than the private
sector. Barring radical changes in inter-sector skill mix, since 1960,
Ghana is likely to have had a public sector compensated at or below private
sector levels. Kenya displays, another pattern, one of wage dominance by
the public sector, and thus illustrates the diversity of inter-sector wage
outcomes across nations.

(2) Disaggregated data between civil service and private employment
do not point to any obvious pattern of wage differences between sectors.

(3) Real wage erosion has characterized public employee compen-
sation in several African nations since Independence. Although nominal wage
increases are apparent, there is little evidence to suggest that government
workers have universally managed to perpetuate a "privileged" wage position.

(4) A growing earnings wedge between the formal and informal
sectors of the economy was tested for. Such a wedge is a hypothesized outcome
of wage leadership behavior. The Kenyan results were consistent with this
growing differential while the other nations were not. In general, the data
are inconclusive.
(5) For Ghana and Kenya the aggregate relative earnings trends in public and private formal employment suggest that the post-Independence era fostered an, at least initially, distorted public wage structure. Adjustments to this initial position have appeared to have occurred.

(6) At least for Sierra Leone, there is some evidence of compression, over time, in the public sector's own wage structure. The implications of this compression for the efficiency of the labor market and the performance of the civil service cannot be readily determined.

(7) Micro-data from Tanzania reveal a considerable wage advantage to parastatal employment in 1971. This premium is in evidence across all occupation groups.

All these statements are, of course, constrained by the stated weaknesses of the available data. Furthermore, they may reflect country specific circumstances and may not be readily generalized. What they certainly suggest is that many prevailing opinions on employment and earnings in the public sector in Africa are likely to be unwarranted.
CHAPTER FOUR - NOTES


Coverage of Earnings Series

Kenya
(a) Coverage of the private non-agricultural sector was expanded after 1963 which may, in part, account for the initial post-1963 earnings gap between the public and formal private sectors.
(b) Agriculture excludes all public employees classified as agricultural workers. These workers are instead incorporated into the public sector series, however, they constitute a very small percentage of total public employment.
(c) After 1972 the earnings series switched from covering Africans only to citizens only. The implications of this change are discussed above.
(d) Earnings are expressed in Kenyan sh/annum.

Ghana
(a) Agricultural earnings are for men only.
(b) Earnings are expressed in Ghanaian Cedis/month.

Tanzania
(a) Public enterprise earnings are included in the private non-agricultural series before 1966. After 1966 they are part of the public sector. Before 1966, however, parastatals employment was negligible.
(b) Earnings are expressed in Tanzanian Shillings/annum.
CHAPTER FIVE - Future Research

As was stated in the Introduction, this paper is meant to be exploratory. Both the conceptual issues raised in Chapter Two and the empirical trends discussed in Chapters Three and Four barely skim the surface of what we would like to know about public sector wages and employment. If policy advice in this area is to improve, a commitment must be made to study the many facets of this complex issue. Below we list a number of specific areas which warrant attention and briefly sketch a research strategy for further work.

A. Problems of Wage Determination

1) Improving the Performance of the Civil Service

In this paper we have hardly discussed the role of government wage policy in motivating public employees and yet it may be one of the most important elements of such policies. Given the reported inefficiencies and wastefulness of many government activities, it is important to investigate employee wage/performance relationships. How can the internal wage structure of the civil service be designed to provide incentives for higher productivity? What role do promotions, job changes and perquisites of office play in this process? Can existing tenure and seniority systems be modified to award performance and penalize the lack of it?

2) Equity Wage Policies

Equity wage policies may entail substantial efficiency costs. The fundamental equity-efficiency tradeoffs need to be better understood. Are unskilled wages being raised above opportunity costs and generating distortions in the labor market? Or, is the brunt of wage equity policies falling on senior staff through low wage policy at their salary grades? Is compression in the public sector earnings structure occurring and, if so, how is this outcome diverging from supply side dynamics which should be pushing wages in the same direction?
3) "Prevailing" Wage Principles

In what, if any, occupation categories could LDC governments adopt a. "prevailing" wage principle? In general, a better understanding of the structure of labor demand for given skill classes would provide guidance on what market wage signals the government could rely on for judging comparability. It would also provide more insight into whether the public sector is a high wage sector and what distortions such practices generate.

4) Ability-to-pay criteria

An historical study might reveal the significance of ability-to-pay criteria on public sector wage determination. A better understanding of cyclical fluctuations might contribute to more efficient long run salary strategies which might help to depoliticize wage and employment decisions.

5) The Wage Package

An area that has not been explicitly considered in this paper is the size of non-wage compensation in public employees' total wage package. Evidence from some nations suggests that housing and transportation may account for substantial percentages of the total value of public remuneration. A better understanding of these fringes is needed in order to compare public/private differentials and their subsequent impact on labor allocation.

6) Rationalizing Parastatal and Civil Service Salaries

Analogous to the wage equity issue, governments need to appreciate the implicit costs and/or benefits of the existing wedge between public enterprise and civil service salaries. The issue involves both the source of the parastatal wage premium as well as the impact on the civil service of high wage opportunities in public enterprises.
The civil service/paragraph wage differential is an attractive research issue because it is of direct policy relevance and due to the recent and rapid growth of parastatal employment, is an issue of growing importance.

B. Employment Problems

1) Supply Side Dynamics

This paper has focused on government demand for labor. Labor supply has been treated as exogenous. However, government policy is a critical determinant of the flow of educated workers. A better appreciation of the relationship between education policy and public employment would help to clarify the market environment of educated workers. Among other issues, the employer of last resort theme could potentially be better understood.

2) Matching Workers and Jobs

A corollary to the dynamics of labor supply concerns an allocative problem which may be prevalent in many public sectors. Overtraining in certain occupations may lead to gross mismatches between workers and jobs.* An example would be a trained civil engineer teaching mathematics in a secondary school. The cost to the society is the subsidized cost of the mismatched individual's training. To study the problem of matching would require detailed information on worker attributes by occupation. The causes of the problem are likely to reflect poorly designed internal wage structures and/or poor education planning.

3) Decomposing the Public Sector's Wage Bill

A useful empirical exercise would be to decompose the wage bill of a given nation's public sector in order to determine the relative merits of wage restraint versus employment containment. Such an analysis

*The problem may also manifest itself in continual upgrading of hiring requirements which leads to overqualified individuals filling job slots.
could easily signal which occupations and salary grade levels are most in need of further study and what impact alternative policies would have on public costs.

C. Components of Future Research

The study of public sector wages and employment in developing nations lends itself to a multi-country analysis. Since the Independence era few nations have experienced enough changes in their own policies to permit meaningful evaluation of alternative approaches. A multi-country analysis increases the variance in experiences and facilitates comparison.

The weakness of adopting a multi-country analysis is that research in this area is at a very early stage. A rigorous case study of one nation which develops a means of analysis is likely to yield high returns to a subsequent multi-nation investigation.

An intensive single nation study is likely to benefit from researchers with a range of expertise including: a public administration specialist with experience in personnel policies; a public finance analyst who specializes in budgeting recurrent expenditures; an education planner familiar with forecasting labor supply; and, a labor economist with experience in wage structure analysis in a development setting. Such a team would be able to draw on existing resources and should also be able to integrate the perspective of the various government ministries which affect public sector wage and employment policy.
BIBLIOGRAPHY


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GHANA--AGGREGATE EMPLOYMENT TRENDS

TIME (YEARS)

EMPLOYMENT (TENS OF THOUSANDS)

Total

Public

Private
GHANA--REAL EARNINGS TRENDS

MONTHLY EARNINGS (1963 CEDIS)

Private Non-Agriculture
Public Non-Agriculture
Agriculture

TIME (YEARS)
TANZANIA--AGGREGATE EMPLOYMENT TRENDS

TIME (YEARS)

EMPLOYMENT (TENS OF THOUSANDS)

Private

Public

Total
TANZANIA--PUBLIC SECTOR EMPLOYMENT TRENDS

DISTRICT EMPLOYMENT TRENDS

Total Public Employment

Central Government

Parastatals

Local Government

Other

Employment (Tens of Thousands)

Time (Years)
TANZANIA--PUBLIC SECTORAL EMPLOYMENT TRENDS

Total Public Employment

Services

Trans.

Commerce

Construction

Utilities

Manufacturing

Mining

Agriculture

EMPLOYMENT (TENS OF THOUSANDS)

TIME (YEARS)