A FULL EMPLOYMENT ECONOMY AND ITS RESPONSES TO EXTERNAL SHOCKS: THE LABOR MARKET IN EGYPT FROM WORLD WAR II

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ABSTRACT

External shocks in relative prices (oil, cotton) were neutralized by the government through subsidies and taxation. Hence they had little direct bearing on the behavior of labor markets. The latter were chiefly affected by macro-economic events such as fiscal deficits, and wars.

The pattern of reactions by the labor market to these shocks is analysed in the framework of three, behaviorally different, sectors: the public sector (represented by manufacturing), which has a full employment policy, while its wages are determined politically, and are not related to labor market conditions, or to budget constraints; the agricultural and the non-agricultural private sector, which respond to market forces in both wages and employment. This pattern resulted in a continued subsidization of the urban cost of living, and exploitation of agriculture. The protection of public sector employees also resulted in a neglect of agricultural and manufacturing investment in favor of services.

Emigration is, by and large, determined by foreign demand, rather than by local conditions; hence it is not an important adjustment mechanism, but rather another shock to the labor market.
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A Full Employment Economy and Its Responses to External Shocks:
The Labor Market in Egypt from World War II*

Introduction

This study of the responses of the Egyptian economy to external shocks takes us all the way back to World War II. During the four decades since that war an essentially capitalist, private enterprise economy was transformed into a mixed economy. The etatism\(^1\) of Nasser, as continued by later rulers, profoundly changed both institutions and policies. Comparison between these two systems is part of the study. It is by no means obvious how to model a mixed economy, in particular its labor market with a large government and public enterprise sector existing alongside the private sector, considering both the purpose at hand and the specific behavior of Egyptian governments. As a prologomena to the discussion of the responses of the economy to external shocks, much of the paper is for that reason devoted to the functioning of the economy and its labor market. The behavior of wages is crucial for the functioning of any economy and thus for the specification by sectors. I found it necessary not only to operate at a lower level of aggregation than is common in both Keynesian and Monetarist macrotheory but also to operate with a sectoral disaggregation entirely different from that so frequently applied in the analysis of external shocks to LDCs by general equilibrium theory of the Heckscher-Ohlin type. Disaggregation is indispensable in the case of Egypt because market-determined wages and employment prevail in part of the economy while in a substantial part of the economy wages are a political price and employment a matter of government policy. Many countries, of course, have a public sector with these characteristics. For Egypt, however, and I suspect many other LDCs,
the public sector is quantitatively so important that this dualism has to be in from the very beginning. Disaggregation along these lines does not, however, lead us to disaggregation on export, import, and non-traded goods producing sectors as Heckscher-Ohlin type theory has it. The latter disaggregation does not apply easily to Egypt where for technological reasons individual enterprises in agriculture produce both exportables (cotton and rice) and importables (cereals, pulses) as well as non-tradeables (animal feed, clover) in a crop-rotation that rules out specialization.

Available data do not permit anything like a complete quantitative analysis of wage formation before and after the system changed through pervasive nationalizations around 1960-61. Analysis of the data we do have strongly suggests, however, that Egypt from the 1960s is best understood as a kind of full employment economy with the public sector (general government and public enterprise) and agriculture playing key roles, interacting with the nonagricultural, private ("informal") sector. These then being our three sectors, we have no need either for the dichotomy "urban-rural" because both public sector and "informal" sector are present on a large scale in rural areas and because inhabited Egypt in any case geographically is so small and distances so short that commuting between rural and urban areas for a majority of rural labor is a realistic alternative.

The mechanisms that have allowed the labor market to function as a full employment market since the 1960s are, on the one hand, the very large standing army (4 percent of the labor force) with the civil, public sector's automatic absorption at predetermined wages of educated entrants to the labor force, a key institution in etatist Egypt, and, on the other hand, the high degree of wage flexibility in agriculture that so far has enabled this
sector to absorb any supply of labor forthcoming to it. This is not to claim, of course, that Egypt's is an efficient full employment economy. Most observers would agree that there is massive "disguised" unemployment in the public sector. From a labor market analysis point of view the important thing is that an institutional mechanism exists that constrains this part of the labor force from appearing as supply in the open segments of the labor market. This is not to claim either that the built-in institutions and market mechanisms in Egypt will be able to absorb any shock to the labor market without involuntary unemployment arising. The last qualification is particularly important today when Egypt, to quote a great Alexandria-poet, is "waiting for the barbarians," the emigrant workers, to return from the Arab OPEC-countries.

We move then on to the analysis of wages and wage formation in Sections 2 to 6, followed by a characterization of the full employment economy of Egyptian etatism, Section 7, and a brief description of Sadat's liberalization policy, Section 8, after which we finally are ready for discussing wars and terms-of-trade shocks, Section 9.

1. Real Wages from World War II to the 1980s

Fig. 1 depicts real wages for industry and agriculture, both in terms of cost-of-living. The underlying nominal wages for industry are average weekly earnings in manufacturing, establishments with more than 10 employees, for agriculture average daily wages for male adults. Both series are reasonably reliable. The official, national cost-of-living index was used as deflator.\(^2\) This index is believed to be downward biased, especially during the period of relatively strong inflation after 1973. Our real wage indexes are for that reason probably somewhat upward biased, in particular after 1973. The bias may not be the same for manufacturing and agricultural real wages.
Fig. 1 - Egypt

Real Wage Rates, Agriculture, 1965 = 100

" " " Manufacturing, 1965 = 100

Terms of Trade, 1965 = 100
Over the 33 years from 1948 to 1981 the average growth rates of real wages in manufacturing and agriculture have been approximately the same, 2.6 percent against 3.0 percent, respectively. This should cause no surprise, assuming a certain minimum of mobility of resources. Both in the short and the medium term, however, there are substantial differences between the two series. We notice in particular the period 1964 to 1973 when real wages in manufacturing continued on an upward trend while in agriculture real wages declined substantially in 1965-66 and then continued on a slightly downward path until 1973. From 1973 the roles are reversed. Manufacturing continues the upward trend, perhaps slightly accelerating during the second half of the seventies, with agriculture shooting upwards, but only regaining the relative loss from 1964 to 1973 but running way ahead of manufacturing.

Aggregation is the rule in macroanalysis and we could, of course, have computed a weighted average of real wage rates in agriculture and manufacturing and analyzed the movements of the weighted average. First, however, this would not have amounted to computing a national average because important sectors such as the whole "informal" sector and general government are missing. Second, from 1964, at least, relative wages changed dramatically. Third, during the period institutional conditions of wage formation in manufacturing changed even more dramatically. Before 1957 modern industry was overwhelmingly privately owned with foreign influence, important but somewhat reduced through Egyptianization of companies undertaken in the late 1940s. Labor unions existed but arbitration was compulsory (see below). Sequestration of British and French property after the Suez War of 1956 with wholesale nationalizations, 1960-61(3) and sequestrations of the property of hand-picked wealthy Egyptian families, 1961-63, subsequently brought an overwhelming part of large- and
medium-sized enterprises under government ownership and dominance with the unions tightly controlled. Given these circumstances aggregation of manufacturing and agriculture would be ill-advised.

2. The Phillips-Curve in Egypt

Following Friedman (1958) we can formulate the Phillips-curve as a positive relation between the time rate of change of real wages and the level of economic activity, the latter possibly (inversely) expressed, as in the original Phillips-curve, by the rate of unemployment. With standard notation we have

\[ (\dot{w} - \dot{p}) = f(u), f' < 0 \]

or, alternatively

\[ \dot{w} = f(p, u), f_1' > 0, f_2' < 0 \]

where at perfect (rational) expectations \( f_1' = 1 \). \( u \) may be replaced by some other indicator of the activity level such as the deviation from full or "normal" employment or production.\(^5\)

Fig. 2 shows the national unemployment rate for the years for which labor force survey data are available, that is 1957-62, 1964, 1968-75, and 1977-82. On the dubious assumption that these are years chosen at random from a larger population of observations, we estimated both forms, (1) and (2), for agriculture and manufacturing. OLS regressions with Cochrane-Orcutt transformations as needed yielded the results shown in Appendix Table A Est. 1-4.
Fig. 2 - Egypt, Activity Indicators

- Unemployment, total, LFS - U-pct.
- " with work experience, LFS
- " total, Pop. census
- " with work experience, Pop. census
- Real income per capita, deviation from trend, inverse, YR - LE.

Symbols are here

DWA  annual rate of change of nominal wage in agriculture
DRWA " " " " " real " " "
DWM " " " " " nominal wage in manufacturing
DRWM " " " " " real " " "
DP " " " " " cost-of-living
U  rate of unemployment

Estimates 1 and 3 are based on form (2). We obtain correct sign and high t-statistics for the coefficients for DP for both agriculture and manufacturing. The coefficient for manufacturing is close to 1 but that for agriculture is as high as 1.69. The coefficients for U are in both cases entirely insignificant and for manufacturing the sign is even wrong. The adjusted R^2s are 0.66 and 0.50, respectively. Shifting to form (1), i.e., shifting the price variable to the LHS, we obtain in both cases, Est.s 2 and 4, positive and entirely insignificant coefficients for U. The adjusted R^2s are negative and close to zero. The constants are positive in all four estimates as they should be but all are insignificant.

The conclusion seems to be that whatever explanatory powers the Friedman-version of the Phillips-relation has for Egypt lies in the price variable while unemployment has little or nothing to offer in explaining real or money wage changes.

Our unemployment data are, however, available only for 21 years between 1957 and 1982 with gaps. Partly to escape the data gap problem, partly to be able to cover years before the nationalization of manufacturing industry, the unemployment variable was replaced with an economic activity indicator, Y, defined as real national income per capita of total population. As a substitute this variable should have a positive sign in the Phillips
relation. To allow for increased labor productivity a trend variable, $T$, was added. Estimates 5 to 10 show the results for manufacturing. They are not impressive.

Estimate 5 for the 33 years 1948-81 on form (2) is the closest we get to a successful Phillips-relation estimate. All coefficients have correct sign. The coefficient for DP is significant at the 10 percent level but its value is rather low, 0.55. The coefficient for $Y$ is low but close to being significant. Time is insignificant and the $R^2$ on the low side, 0.50. Shifting to form (1) for the same period, Est. 6, the $Y$ variable has correct sign but is very small and insignificant. Time is insignificant and adjusted $R^2$ negative and close to zero.

For the 13 years of private ownership, 1948-61, Est. 7 and 8, the coefficient for the price variable is relatively strong and significant but in both forms do the $Y$ variable come out with wrong sign and is close to being significant. The adjusted $R^2$s are low. For the 22 years with predominance of public ownership, 1960-81, Est. 9 and 10, finally, all coefficients come out with correct sign but are small and insignificant. On form (2) the adj. $R^2$ is 0.44, on form (1) - 0.07.

Estimates 11 and 12 for agriculture are based on the same specification. A dummy was here added to take care of a particularly bad crop year (1961). Form (2), Est. 11, results in a significant impact from prices with a coefficient close to 1 but a weak, insignificant impact from the $Y$ variable; the signs are correct. The adjusted $R^2$ is quite low albeit significant. Form (1), Est. 12, results in a low but significant influence from the $Y$ variable with correct sign but the adjusted $R^2$ is close to zero.
This exercise only strengthens our conclusion that if the Phillips relation at all helps to explain the variation of wages in either agriculture or manufacturing, it is mainly through the price variable. Without the price variable $R^2$s are very low and the significance of the sign of the coefficient of the $Y$ variable is even in the most favorable case low. It might be argued against our results that for the purpose at hand it would make sense to redefine $Y$, excluding the Suez canal and the oil sector. Both canal and oil have very little employment content, both contribute importantly to national income and both have fluctuated strongly, partly related to the wars with Israel. We estimated real GDP thus defined for the period 1960-80 (see Fig. 2) and used this series in estimates not reported here. The results did not change substantially.

3. Marginal Productivity Theory of Wages

The Phillips relation explains the rate of change of wages by the level of economic activity and possibly price expectations. It assumes disequilibrium in the labor market with involuntary unemployment. A different approach to wage determination is to explain the level of wages, assuming enterprises to be on their demand curves for labor without making specific assumptions about the state of the labor market. This leads us to explain product wages by marginal productivity or, alternatively, money wages by output prices and marginal productivity. We have no way of measuring marginal productivity in either manufacturing or agriculture but under simplifying assumptions we may replace marginal with average productivity, the latter possibly being observable.
(i) **Manufacturing**

With this approach to manufacturing we are up against data problems. For the period 1953 to 1970 we have output and employment series for manufacturing put together by Mabro and Radwan (1976, Tables 5.3, 8.1 and 8.2) on the basis of official statistics. These series have the great advantage of straddling the nationalizations 1960-61 and thus offer us a chance of studying the impact of this institutional change on wage formation. No corresponding output price index exists and we have to use cost-of-living as a proxy. For the years after 1970 we do not have adequate, reliable data. No output index exists and the official value added estimates for industry includes the "informal" sector for which there is no solid information about output. My suspicion is that the official value added estimates for industry are based on employment data (from the labor force surveys) with assumptions about productivity in small scale industry. For that reason I shall not use national accounting data for the present purpose.

Regressing then real wage rates on labor productivity (per man or per hour) for the period 1953-70 as a whole, we find no significant impact of productivity on real wages, Est. 18 and 19 in App. Tbl. A. The coefficient is positive as it should be but $R^2$s are close to zero, the F-statistics are insignificant and so are the t-statistics for the productivity variables. Regressing money wage rate on cost-of-living and productivity (per man and per hour) for the same period (Est. 20 and 21), however, we find high $R^2$ and $F$ values with very high t-statistics for cost of living and significant t-statistics for productivity per hour but not per man.

So far so good. Our problem is, however, whether the nationalizations had any impact on wage formation. For the pre-nationalization period
1953-62 we find a highly significant positive impact of productivity, both per man and per hour, on real wage (Est. 26 and 27). For money wages (Est. 28 and 29) we continue to find a highly significant impact from productivity with an insignificant, even negative impact from cost-of-living. For private enterprises, on their demand curve, we should expect the impact of both productivity and prices (cost-of-living) to be positive. The negative impact of prices is disturbing but the following considerations may be relevant: The negative impact is statistically insignificant and does not rule out a positive impact in a larger sample. Moreover, actual price variations during this period were small and our price variable is strictly speaking misspecified. Labor unions were emasculated and prevalence of piece-rate work may have blurred the effect of prices. Indeed, the results may reflect a non-competitive situation with a high frequency of piece-work that automatically allocates the gains from productivity increases, at least partly, to the workers, with employers unwilling to compensate for cost-of-living changes that may not be correlated with product prices. Finally, there is a certain multicollinearity present.

Shifting then to the period 1962-70, after the nationalizations, we find a significant negative impact of productivity, both per man and per hour, on real wage rates (Est. 22 and 23). From 1962 to 1970 labor productivity actually declined annually by 2.3 percent per man and 4.2 percent per hour; real wages nonetheless increased by 3.4 percent annually! For money wages we find a highly significant impact of cost-of-living with an entirely insignificant impact of productivity (negative for productivity per man, positive for productivity per hour).

While our results do not exclude that before the nationalizations marginal productivity theory may apply to wages in manufacturing, for the
period after the nationalizations they corroborate our results from the
Phillips-approach: the government tended to give cost-of-living compensa-
tion to workers but paid no attention to productivity in setting wages. The
nationalized industry was not on its labor demand curve.

(ii) Agriculture

For agriculture we are faced with different data problems. Employment
data for agriculture do not permit reliable estimates of labor productiv-
ity. Both population censuses and labor force surveys grossly under-
enumerate unpaid family labor (females and children) and we have strong
reasons for believing that unpaid family labor input increased relatively
with the emigration to the Arab OPEC countries after 1973 (Commander and
Hadhout, 1986, Ch. 4). Moreover, output data forces us to work with one
series for 1948-68 and another one for 1953-84. Government interference, on
the other hand, was not a problem (see below Section 5).

Since we have no direct measure of labor productivity we start out by
noticing that under competitive conditions and market clearing, a Cobb-
Douglas production function with neutral technical progress, and constant
employment the nominal wage rate should be proportional to total nominal
value added. In Fig. 3 these data are plotted for the years 1953-1984. We
do not have estimates of nominal value added for years before 1953. Regres-
sing nominal wage on total nominal value added (both logged) we find an
almost exactly proportional wage response to value added. The simple OLS
regression has a very low DW, 0.18. Applying Cochrane-Orcutt we obtain the
coefficient 1.21 to lnVA which, considering a standard error of 0.11 does
not exclude proportionality. The striking feature, however, is a clear
cyclical movement of wages around the least-squares trend, above trend from
1953 to 1965, then below until 1980 and finally above until 1984 (1955 and
1980 looking like statistical flukes). The wage rate, on the other hand,
Graph 3: Exports Agriculture 1963-1984
WA: Nominal Wage Rate
VA: Total Value Added

Observations:
- WA = 0.09t + 0.6VA, R^2 = 0.94, DW = 0.34, OLS
- VA = 0.73 + 0.5VA, R^2 = 0.99, DW = 1.06, OLS, Cochr.-Orcutt
after declining 1953-55 increased faster than the trend 1960-62, more slowly 1963-73, and then faster after 1973 (disregarding the possible fluke in 1980) with indication of a retardation after 1983. I interpret the agricultural wage cycle to be generated by fluctuations in the supply of labor to agriculture, inter alia determined by the development of the level of activity in the economy as a whole, emigration of labor after 1973, etc. In section 7 I shall discuss details.

This leads us to consider the relation

\[(3) \quad W = f(V, Y)\]

where \(Y\) is an auxiliary variable constructed as the deviation of real national income per capita from its trend for the years considered. The estimate of a simple linear form for 1953-84 is presented in Table 1 as Est. 13*. The fit is very good. \(R^2\) is now 0.99, the \(t\) of \(V\) is 13.4 and that of \(Y\) 1.9; Cochrane-Orcutt to help improve a low DW did not change results substantially. In terms of elasticities, taken at the means, the response of nominal wage to value added is rather high, 1.3 which should indicate a shift toward more labor demanding technology—provided, of course, that our \(Y\) variable correctly captures employment changes. We included a terms of trade variable in Est. 14*. The latter turned out to be insignificant but otherwise results were similar to those of Est. 13*.

While estimates of nominal value added for agriculture for years before 1953 are not available, an index for output value of major field crops from 1948 to 1968 does exist (Wattleworth, 1975, pp.A.125 and A.136). This index was used as a proxy for nominal value added and an estimate of (3) for these years yielded the results shown as Est. 15. \(Z\) stands here for the total output value index and \(Y\) is the deviations of real national income per capita from the trend for this period. We threw in a dummy to account for
the special circumstances around the failure of the cotton crop in 1961. The estimate is almost as good as that for 1953-84 in Est. 14*. Notice that the coefficient for Z in Est. 15 implies the same elasticity, 1.3, as we found in Est.13.8

The variables used in Ests. 13-15 do not permit a log-linear specification, YR taking on both positive and negative values. To overcome this problem we tried to use VA or Z with Y and a time trend as explanatory variables on log form, Est.s 16* and 17. The results support those from the linear forms (Est.s 13-15). R^2s are high and so are the t-values, in particular for Est. 16. In this estimate we find an elasticity of the wage rate with respect to value added of 1.1, determined with high precision, t = 5.75, yet not significantly different from unity which indicates that technical progress in agriculture may have been neutral.

In market-clearing models simultaneity is always present and it is a question whether our simple one-equation estimates may not be biased for that reason. Concretely the question is whether the wage rate feeds back into value added (or output value). In principle it does, of course, through costs of production and demand for food products from agricultural laborers. Throughout much of the period, 1953-80, major agricultural prices were set by the government and such prices might be affected directly by current agricultural wages. In setting prices, the government did take into account costs of production including wages and with prices fixed before the beginning of the harvest estimated wage costs might obviously depend upon current wage rates. At the end of the period prices for an increasing number of agricultural products were left to the market forces but these were, more often than not, products beyond the means of agricultural laborers. Wheat may have been an important exception but here the influence
from the low, fix prices of subsidized wheat, flour and bread, predominantly sold in urban areas probably dominated the picture through urban-rural trade. Simultaneity is thus in principle a problem. Formally, I do not see, however, how to take care of this problem. The necessary data do not seem to be available for formulating and estimating a complete model.

4. **Wage Determination in the Public Sector**

Before World War II Egypt had free labor unions. These were small and divided, some dominated by communists (textiles, for instance), some by the Moslem Brotherhood (sugar and oil), some by the moderate Wakf-party. The unions were officially recognized in 1948 in which year, however, compulsory arbitration was introduced for key industries. From 1952 compulsory arbitration was extended to all industries and the unions rapidly became government controlled, the President of the unions and the Minister of Labor nowadays being the same person. The unions have had no real say in wage setting in either private or public sector. Public sector wages are thus one-sidedly set by the government. Since the nationalizations around 1961, a grade system has been applied to public enterprises and authorities, similar to the one applied to civil servants and employees in General Government. Seniority increases are large and practically speaking mechanical. Before the nationalizations and the introduction of the grade system piece-rate work was common in manufacturing. From 1962 time-rate work predominates and it is now fair to say that incentive pay is of no importance in the public sector. The grade system has been revised several times; in 1975 the number of grades was reduced and differentials between highest and lowest grades substantially reduced for equity reasons. Over time the lowest grades have tended to get full cost-of-living compensation
while the higher grades have lost considerably in real terms insofar as basic salary is concerned.

Government decisions about public enterprise wages apply after 1961 in practice also to large and medium-sized private, nonagricultural enterprises that moreover have to comply with minimum wage and social security legislation. 11 Although our real wage series for manufacturing covers both public and private enterprises above a certain size, it is a good approximation to assume that since 1961 wages in manufacturing, thus defined, are determined by government decree. In studying money and real wages in manufacturing since 1961 we were thus in effect studying the behavior of government and not of market forces. What our estimated Phillips-relations for manufacturing after 1960 tells us is that in its wage setting, the government has paid little or no attention to demand and supply in the labor market 12 but has, on the other hand, paid much attention to price and real wage developments, trying to some extent, at least, to compensate public sector wage earners for cost-of-living increases. This is entirely consistent with the government's concern about stabilizing cost-of-living through price and rent controls, subsidization, rationing, etc., in view of its own, at times strongly destabilizing fiscal-monetary policy. Public sector wage and cost-of-living policies are integral parts of the government's general policy of income distribution and welfare. If thus the coefficient for the price variable in Phillips-relations is found to be close to one this should not be interpreted to mean that inflation is fully expected by the labor market. It reflects government behavior.

Although the inverse relationship between productivity and real wages in manufacturing 1962-70 indicates that wage determination in this sector did not conform to marginal productivity theory, it might still be argued
that the government had no choice but to let public sector manufacturing
workers enjoy the same real wage increases as workers in the rest of the
economy, lest the public sector lose labor to the private sector. In this
sense, it might be claimed, public sector wages did in fact follow the
market. This argument, however, overlooks that agricultural real wages,
in fact, suffered a decline from 1964-1970 and were in 1970 11 percent lower
than in 1962. We have no information about wages in the informal sector but
it seems unlikely that real wages should have increased substantially here,
given the decline of real wages in agriculture (see below). The only way of
explaining wage developments in manufacturing seems therefore to be to
assume that political considerations took the upper hand, that in other
words, public sector wages essentially are a political price. From this
point of view, it is instructive to briefly review annual real wage develop-
ments in manufacturing, from 1961 to 1970.

After the nationalizations of 1961 real wages in manufacturing were
increased strongly for two years. It was clearly a matter of demonstrating
to workers and employees the blessings of Arab socialism, the newly adopted
official ideology for Egypt. This is standard behavior of socialist leaning
governments after a political takeover. Allende, Mitterand, and Papandreou
may stand up and be counted. In 1964 the costs of the Yemen war with
sharply deteriorating exchange reserves and foreign relations forced the
Egyptian government to reverse the policy and adopt an austerity policy with
serious cutbacks of public investments, increases in public sector prices
and public sector wage restraint. General budgetary considerations thus
took the upper hand in public sector wage setting. The military defeat in
1967 then threatened the very authority of the Nasser-regime. Substantial
wage increases with stiffer price controls were now apparently thought
necessary to placate public sector workers and employees. Before his death, Nasser realized the disastrous developments in the public enterprises and the cycle of public relations in wage policy entered yet another recession; productivity and efficiency was emphasized (Waterbury, 1983, p. 99) and real wages in manufacturing were cut back somewhat in 1970-71. It is difficult to quantify policy considerations of this nature. We could, of course, represent such wage determining factors in formal regressions by dummies but we would need more dummies than we have observations and informed narrative probably handles events better.

One point of importance for both interpreting the official wage statistics for manufacturing and understanding governmental wage policy is, finally, that the wage statistic, based on establishment censuses, only include so-called permanent employees, defined as employees having been employed for the minimum period (half-a-year) required for obtaining employment security and entering the social security programs. In other words, in contrast to the agricultural wage statistics, casual labor is not included. This is particularly important in construction where the large majority of workers is casual labor but it may also play a role in manufacturing. Casual labor may here be in line for permanent employment and will in that case presumably be paid according to the grade it is in line for. In construction, however, there is little doubt that casual labor is paid going market wages. This is the case also in public construction work which mostly is organized through subcontracting where formally it is private contractors who hire and fire and negotiate wages with the individual worker. Government demand thus undoubtedly plays an important role for the development of wages for casual construction workers in areas such as canal and road work, public buildings, etc.
5. Wage Determination in Agriculture

The agricultural labor market is largely free from government intervention and is not unionized. Statutory minimum wages do exist but are not observed and no attempt has ever been made to enforce the legislation. In any case, current wages have greatly exceeded the minimum wage since the mid-seventies. One major agricultural operation is organized by the agricultural cooperatives which are, effectively, part of the public sector. This is the manual cotton pest control, performed in late May and early June, by children under supervision of adult women, hired by the cooperatives. For this operation, however, market wages are paid.13

Our estimates of agricultural wage determination assume and point to market clearing, at least at the peak seasons. There is considerable evidence (based upon surveys of employment patterns) supporting the market clearing hypothesis in this sense (Hansen, 1969; Richards & Martin, 1982). Whether the agricultural labor market clears outside the peak seasons is another matter. Seasonal wage flexibility is very substantial (ibid.) but so is measured seasonal unemployment. Information from a small sample from a few villages in the Delta suggests that the market price in off-season months may exceed the reservation wage of unemployed agricultural workers who accordingly would be involuntarily unemployed (Richard & Martin, 1982). If accepted at face value, this information would force us to look for some mechanisms that would prevent wages from falling sufficiently for clearing the labor market outside the peaks. Internal labor market theory in the efficiency variety would be a promising candidate (Hansen, 1985). It is claimed (Commander and Hadhoud, 1986) that long-term contracts for seasonal employment are gaining ground. We are here, however, on very uncertain ground, both empirically and theoretically.
6. **Wage Determination in the Non-agricultural, Private Sector**

Official annual wage data cover only establishments with 10 (permanent) employees and above and do not include casual labor. For sectors other than manufacturing the official data are for those reasons of particularly limited values and I shall not use them here. As in most other LDCs we are thus for Egypt without systematic information about the development of wages in the so-called informal sector. Available studies are mostly concerned with other aspects of this sector than wages and conditions of work (Mead, 1982). Some information about wages for construction workers (Moheieldin, 1979; Hansen & Radwan, 1982, Table 25) point to a very high degree of upward wage flexibility for both skilled and unskilled labor in this industry which mostly employs casual labor. Whether there would be sufficient downward wage flexibility to ensure market clearing under all circumstances is doubtful. In the late fifties the labor force surveys showed considerable unemployment for construction workers. The situation may here be very different for unskilled building workers who in case of a slack in construction might prefer to return to agriculture from where they might have come, possibly on a temporary, commuter basis, and skilled workers (painters, joiners, electricians, plumbers, etc.). The latter might attempt, as self-employed, to obtain repair and maintenance jobs for private households (thanks to the existing rent controls, repair and maintenance is de facto the tenant's problem), but even with the price of labor falling to nothing the demand for such work might not respond sufficiently to create full employment because materials are relatively expensive. For the rest of the informal sector we can at most speculate about wage formation and developments but no solid systematic information exists. There is something to indicate that the labor market surrounding a particular small enterprise
is very small (family, personal acquaintances, relatives of employees, etc.) and for that reason tends to be imperfect (Mead, 1982). It has been conjectured that internal labor market theory might apply also to this sector. Turnover seems to be small but some work sharing may exist that make work time adjust to the level of activity of the enterprise, an indication that the risk-sharing variation of internal labor market theory may be relevant. For these reasons I do not believe that we can assume market clearing generally in the informal sector but this remains a subjective conjecture.

7. The Full-Employment Economy of Egyptian Etatism

Simple Keynesian or Monetarist macro theory aggregates the economy into one single sector producing the GDP with one single category of labor. For Egypt a minimal sector specification should for institutional reasons operate with a public sector, agriculture, and a private, nonagricultural sector with the public sector including both general government (administration and public services) and public enterprises. Measured by employed, enumerated labor force, and with a breakdown by urban and rural areas, the relative size of these sectors were in 1976 (the latest population census).14
Table 1

Labor Force by Sector and Urban-Rural Areas, 1976

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percent of Total Labor Force</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>General Government</td>
<td>20.8</td>
</tr>
<tr>
<td>Public Enterprises</td>
<td>10.4</td>
</tr>
<tr>
<td>Public Sector, Total</td>
<td>31.2</td>
</tr>
<tr>
<td>Agriculture (private)</td>
<td>42.5</td>
</tr>
<tr>
<td>Non-agricultural, private</td>
<td>26.3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Hansen (1985), population census data, not including armed forces.

By this token agriculture appears as the largest sector with the public sector second. For macroeconomic labor market analysis it may, however, be more appropriate to measure sector size by number of paid employees. By segments we have now for the total labor force and for employees separately:
Table 2

Labor Force by Segments and Urban-Rural Areas, 1976

<table>
<thead>
<tr>
<th>Segments</th>
<th>Total</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employers and Self-employed, Total</td>
<td>31.0</td>
<td>21.6</td>
<td>38.9</td>
</tr>
<tr>
<td>of which in: Agriculture</td>
<td>19.7</td>
<td>2.7</td>
<td>32.9</td>
</tr>
<tr>
<td>Non-agric., private</td>
<td>11.3</td>
<td>18.9</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Employees, paid, total

| of which in: Public Sector | 31.3  | 45.4  | 50.2  | 64.0  | 15.4  | 25.2  |
| Agriculture, private       | 22.6  | 32.8  | 4.1   | 5.2   | 38.0  | 62.2  |
| Non-agric., private        | 15.2  | 22.0  | 24.1  | 30.7  | 7.7   | 12.6  |

Total                      | 100   | 100   | 100   |

Source: Hansen (1985), population census data, not including armed forces.

By this token, the public sector dominates on the demand side, employing almost half of all employees, with agriculture second, employing almost one-third, and the nonagricultural, private sector employing a little more than one-fifth.

The distributions by urban-rural areas show that the dominance of the public sector is even more pronounced in urban areas than in total Egypt as one might expect. The public sector employs about half the labor force and almost two-thirds of all employees in urban areas. In rural areas agriculture, of course, dominates both in terms of labor force and employees. The striking feature is, however, that both public sector and nonagricultural, private sector are important in rural areas. In terms of labor force both employ about 15 percent. In terms of employees, the public sector employs about 25 percent with the nonagricultural, private sector employing about 13
percent. In rural areas there are thus substantial employment possibilities outside agriculture. Let it be added that multiple employment status or occupation (jobs) are not recorded in either population census or labor force surveys but are known to be important (Radwan and Lee, 1986; Commander and Hadhoud, 1986, ch. 7). Unpaid family labor, particularly important in rural areas is not included in our labor force data, partly because unpaid females are grossly underenumerated in official statistics, partly because unpaid family labor (by definition) does not participate in the open labor market. Measuring sector size by paid labor, however, is not to belittle the importance for labor market analysis of variations in employment status or labor market participation.15

As already pointed out our wage series for manufacturing may perhaps, at least since the nationalizations of 1961 be taken as an indicator of wages in the public sector generally, including large private enterprises (few in numbers and employees). Also from an employment point of view do we have good reasons for aggregating general government and public enterprises after 1961. In the context of the nationalizations of that year, the government embarked upon an employment drive, shortening the work hours from 48 to 42 hours and ordering all public enterprises to appoint replacement way above needs. In 1964, moreover, a policy of guaranteed public employment for all university and secondary school graduates was adopted. From 1973, finally, as a veterans policy, conscripts honorably dismissed from military service also got the right to public employment. The latter policy was officially abrogated by the government in 1976 but has apparently been continued somehow by the military authorities (recent riots by paramilitary forces were about this issue). Dismissal of public sector employees is almost impossible. Since the early sixties both public enterprises and general government have as a consequence become increasingly overstaffed,
absorbing much of the output from the higher educational system, incapable of finding employment elsewhere. Status considerations with a strong preference for employment security, free health services and pension rights more often than not makes public employment a first choice. It is these public sector employment policies, still prevailing, that with the high degree of wage flexibility for agricultural labor has made Egypt appear as a full or, at least, high employment economy since the early sixties. Needless to say, emigration on a very large scale to the Arab-OPEC countries since 1974 strongly bolstered employment. The foundation, however, was laid in the sixties through increased government employment (civil and military) as appears from Table 3. And, as I shall argue, the system will only function within limits. A severe downward shock such as the sudden return of large numbers of emigrants will probably result in open unemployment.

Table 3

<table>
<thead>
<tr>
<th>Year</th>
<th>General Government</th>
<th>Workers abroad-&quot;emigrants&quot;</th>
<th>General government and abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Civil (in percents)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960-61</td>
<td>(10)</td>
<td>(0)</td>
<td>(11)</td>
</tr>
<tr>
<td>1965-66</td>
<td>12.0</td>
<td>(0)</td>
<td>(14.4)</td>
</tr>
<tr>
<td>1971-72</td>
<td>14.3</td>
<td>(0)</td>
<td>(19.1)</td>
</tr>
<tr>
<td>1978</td>
<td>18.9</td>
<td>(10)</td>
<td>(33.0)</td>
</tr>
</tbody>
</table>

Sources: Hansen and Radwan, 1982, Table A.1. Figures in parentheses: Informed guesses.
First, however, a few words about the unemployment data and our failure in establishing a Phillips relation for Egypt:

The population censuses of 1960 and 1976 collected information about unemployment. The results are difficult to compare because the 1960 census was taken in September which at that time was the peak season in agriculture (cotton harvest) while the 1976 census was taken in November which has always been a slack season in agriculture. That measured total unemployment increased from 2.2 percent in 1960 to 7.7 percent in 1976 only tells us something about seasonalities in agriculture. Both censuses, however, broke down unemployment on unemployed with and without previous work experience. The rate of unemployed with previous work experience declined from 1.2 percent in 1960 to 0.4 percent in 1976. The difference, 1.0 percent in 1960 and 7.3 percent in 1976, consisted mainly of children in rural areas, obviously seasonally unemployed. It would seem that both in 1960 and 1976, unemployment not related to agricultural seasons was low and probably of the frictional variety.

Labor force surveys have been made annually for three periods, 1957-62(64), 1968-75, and 1977-. Format and sampling changed somewhat from period to period but insofar as the unemployment rate is concerned comparability is probably not a serious problem. The surveys are taken in May which has always been a relatively busy season in agriculture and after 1964 (with the closure of the cofferdam at the High Dam at Aswan and the resulting shift of the maize crop from August-December to May-October) became the absolute peak season. This may explain the relatively high level of total unemployment measured by the LFSs during 1957-62(64). We do, however, find a strong decline in unemployment from 1960 to 1962(64) as we would expect considering the government's special employment and general
macro policy. From 1962(64) to 1968 unemployment appears to have edged upwards; considering the change in the agricultural seasons we should, everything else equal, have expected a decline in measured unemployment. From 1968 to 1973 we then find declining unemployment followed by increasing unemployment from 1973 to 1982.

The development of the measured unemployment rate from 1968 to 1982 may look mysterious when compared with our other activity indicator, the deviation of real national income per capita from its trend, YR. In Figure 2 we depict both unemployment rate and YR, the latter inversed to indicate the implied unemployment. The strong increase in the YR indicator during 1967 and 1968 and corresponding decrease in 1974 and 1975 are partly related to the closure of the Suez Canal and loss of oil fields in 1967 with reopening and recovery after 1973. These events, strongly as they affected national income had relatively small direct employment implications. With these qualifications the changes in YR indicate a decline in unemployment and/or a shift in employment from agriculture to nonagricultural activities in 1960-64, an increase in unemployment and/or shift in employment back to agriculture 1964-73, and a reversal in 1973-82. From 1960 to 1970 unemployment rate and inverse YR indicator do not seem to contradict one another although the gaps in the unemployment rate series blur the picture. From 1970 to 1982 the two series, however, show almost perfect negative correlation.16

The solution to this apparent mystery is in the breakdown of unemployment on unemployed with and without previous work experience which we have not only for the population censuses of 1960 and 1976 but also for the LFS data from 1973 to 1982. The rate of unemployed with work experience stayed at a constant, very low level of 0.3-0.5 during these 10 years when the rate
of total unemployment was steadily increasing from 1.7 to 5.7. Labor with work experience apparently only suffered frictional unemployment and at a very low level, possibly because turnover is low. This was the case even in 1973 where apparently there was little growth in the economy. The increase in unemployment during the seventies was thus entirely concentrated on persons without previous work experience. We do not have the unemployed classified by age and education but it stands to reason that this is mostly a matter of school leavers, probably waiting for guaranteed employment in the public sector.\(^{17}\) For university graduates the waiting period is 2 years, for secondary school graduates 3 years. It seems likely that what the increasing unemployment rate is measuring is increasing cohorts of school leavers preferring to wait for public sector appointment. If this interpretation is correct, it implies that it is a matter of voluntary youth unemployment and that the fluctuations in activity level as expressed by \(YR\) resulted in shifts in employment to and from agriculture rather than open unemployment. LFS data for agricultural employment support this interpretation for the years 1970-80 (Hansen and Radwan, 1982, Table 70).

The increase in the rate of total unemployment from 1964 to 1968 may also have consisted of school leavers guaranteed public employment from 1964. We are still left with the decline in unemployment from 1968 to 1973. I do not (at present) have the breakdown on unemployed with and without work experience for these years although the data may exist. The most likely explanation of the decline in unemployment for these years is military drafting. The armed forces increased by about 1 1/2 percent of the labor force from 1967 to 1972 to a high level of 450,000 men. Not only does that correspond closely to the decline in unemployment. It also would imply a relatively strong decline in the young age groups in the civil labor force.
and thus probably would lead to a particularly strong fall in unemployed without work experience, perhaps leaving the rate of unemployed with work experience relatively unchanged at a low level.

The fluctuations in the measured unemployment rate may thus be seen as the outcome of interaction between, on the one hand the government program of guaranteed public sector employment for graduates from the educational system and dismissed conscripts that, from the mid-sixties have led to increasing numbers of youngsters waiting in line for public appointment, and on the other hand the net drafting of a large number of conscripts for the armed forces from 1967 to 1972, never reversed after 1973 through net dismissal of conscripts. At the same time, fluctuations in the activity level with fluctuations in total employment outside agriculture have been absorbed by agriculture with corresponding fluctuations in relative agricultural wages but with little open, involuntary unemployment.

Since it is unrealistic to assume a return flow of labor from urban to rural areas even in times of low levels of activity outside agriculture, the above mechanisms have to be seen as working in an environment in which the labor force is steadily growing, say by some 2 1/2 percent annually:

Let us for the sake of simplification assume that a new entrant to the labor force has a preference for employment in his own sector of origin. This is a well-known social phenomenon. Public sector employees (civil servants, etc.) see to it that their children get education to be eligible for public employment. Some children from the other sectors would, however, also get formal education. All would automatically be absorbed by the public sector under present institutional settings (programs). Children of farmers and agricultural workers would, thanks to the flexible wages in this sector, be absorbed in agriculture if they do not find employment else-
where. Assume, for the sake of the argument, that the public sector only expands through employment of new graduates. Disregarding those who might graduate (and these are still a small minority in agriculture), the only other employment alternative would then be the private, nonagricultural sector. Provided that employment in this sector grows faster than the sector's own labor force, it may absorb part or all of the labor force increase in agriculture. With the agricultural sector one and a half times the size of the private, nonagricultural sector and the general labor force growth rate 2.1/2 percent, the critical growth rate for the private nonagricultural sector is 6.1/4 percent; if lower, agricultural employment will increase; if higher, agricultural employment will fall. If the private, nonagricultural sector grows less than 2.1/2 percent open unemployment will emerge, assuming insufficient downward wage flexibility in this sector. To this picture we have, of course, to add the possibility of an ever expanding public sector absorbing not only educated youngsters but also, as in the past, large numbers of uneducated, unskilled labor. In that case the possibility of open unemployment becomes more remote.18

We shall, finally, emphasize that a flow of labor from agriculture to the private, nonagricultural sector or for that matter, the public sector does not require search from a Harris-Todaro type unemployment pool. The presence of both public sector and private, nonagricultural activities in rural areas is massive and geographically, inhabited Egypt is a very small country. Commuting suffices for efficient search to be undertaken by the rural labor force in urban areas without even temporary loss of employment, and not even commuting may be required in the search process. Harris-Todaro theory does not apply to Egypt.19
8. The Liberalization Policy After 1973

Sadat's policy of infitah ("opening")--actually initiated in Nasser's last years--did not really change the basic etatist nature of the economic system. The public sector continued to expand and privatization of public enterprises made little progress. Private investments did increase their share of the rapidly increasing volume of total investments but in the domestic labor market the increasing predominance of the public sector was not reversed. A considerable number of foreign companies took up activities in Egypt but did not have any significant impact upon the labor market situation. The freedom to emigrate, established as a constitutional right in 1971 with the demand for labor from the Arab-OPEC countries after the oil price boost in 1973 did, however, change the domestic labor market situation radically through massive emigration. In the public sector, nonetheless, wage and employment policies remained largely unchanged.

Apart from the emigration policy the most important aspect of the infitah was probably the liberalization of imports and the emergence of a grey exchange market with flexible exchange rates after 1975. I shall briefly discuss this reform from a labor market point of view. During the 1960s foreign exchange became increasingly short and legal, foreign transactions by the private sector were reduced to almost nothing. The black market rate stood at about half the official, unified rate. Since 1975, however, any foreign exchange brought to the country by nationals or foreigners may be deposited on special, dollar-denominated accounts. Such funds receive Eurodollar market interests and may by the owner freely be transferred abroad for any purpose, inter alia as payment for imports, so-called own-exchange imports that, albeit limited to commodities not competing with public enterprise output, do not require import license. A
grey market for such funds has developed. The exchange rate in this market is called the free rate. The free rate has remained close to the black market rate, considerably depreciated in relation to the official rate. An increasing share (24.9 percent in 1983/84) of total civil imports is financed by own-exchange. Recently private exporters have been allowed to keep export proceeds in foreign exchange accounts and use such proceeds for own-exchange imports. The central bank does not operate in the free exchange market from which public enterprises are excluded. The latter operate through commercial banks at special rates fixed somewhere between official and free rates with licenses required for all transactions. Government imports of basic food and agricultural chemicals and government exports of oil, rice, and cotton with Suez Canal and pipeline dues continue to be settled at the official rate. A multiple, three-tiered exchange rate system has thus developed. 20

Since Sadat generally pursued a policy of sheltering the domestic economy against external shocks, it is a problem why he liberalized imports at free exchange rates with the implications that might have for domestic prices. The answer is partly that this was a device for making repatriation of foreign exchange (remittances) more attractive for Egyptian emigrant workers, partly that the avalanche of own-exchange imports and hence the downward pressure on the free market rate probably exceeded all expectations. The initial expectations of the government may have been that the free rate would continue to appreciate as the black rate actually did from 1970 to 1973. It is, moreover, important that as the system was set up, the free rate hardly affected the prices of goods or services included in the official cost-of-living indexes. These continued to be based on commodities and services with prices controlled by the government and/or imported at the
official exchange rate and (if need be) subsidized. In this sense cost-of-
living is sheltered against free-rate fluctuations and this was clearly a
relatively chosen feature of the new system. Important is probably also
the fact that initially the own-exchange imports were consumer goods that
had not been available at all in the market for years. Their sudden avail-
ability, at whatever prices, could therefore only improve the standard of
living through the wider choice offered. It should finally be emphasized
that own-exchange imports would have no repercussions on the supply of
domestic money. The commercial banks were supposed to keep 100 percent
foreign reserves (investments in the Eurodollar market) against the foreign
exchange deposits.21

Having now described the multiple rate system as a sheltering device
let us briefly discuss how the institution of own-exchange imports and the
development of a free rate different from the official rate may have
affected employment and real wages:

We start out in a disequilibrium situation (1975) with repressed
inflation. With considerable pent-up demand for imports and corresponding
idle LE funds accumulated, the initial impact of the new system would be
that the free exchange rate depreciates to the point where total idle
LE-funds will equal total own-exchange funds converted into LE. This should
not in itself lead to a change in demand for domestic products and there
should be no initial impact on demand for labor. The own-exchange imports
might, however, include raw materials, spare parts and capital goods in
short supply to private enterprises and might thus generate increased
production and demand for labor. This would have a downward effect on
output prices from the nonagricultural, private sector and would lead to
increased real wages in this sector with a drain of labor from agriculture.
If own-exchange imports include agricultural machinery, tractors in particular, the result would be a simultaneous decline in demand for labor from agriculture and it is uncertain what would happen to agricultural wages.

After this initial stock-adjustment, the disequilibrium situation would be replaced by an equilibrium situation with market clearing in the own-exchange commodity market. The LE-prices for own-exchange imports would now be determined by the current flow demand for and supply of own-exchange imports. Whether the (implicit) free exchange rate would rise or fall is impossible to say without further assumptions. It is clear, however, that from now on the own-exchange imports would by themselves involve a deflationary impact on the economy, assuming neutral monetary and fiscal policies. The shift in demand toward own-exchange imports would have very different effects depending upon which domestic sector would experience a decline in demand for its products. If demand shifted away from output from public enterprises, sales and possibly production here would decline. With the government's employment policy for the public sector unchanged no layoffs would take place. The public enterprises would, however, suffer losses that would have to be covered from the public budget. The list of commodities for which own-exchange impacts are not allowed have, by and large, sheltered public enterprises from this possibility. If demand shifted away from nonagricultural, private enterprises, these would cut down on production and employment. If employment could be cut down through a reduction in rural-urban migration the result would be increased employment in agriculture. Under competitive conditions real wages in terms of output should tend to increase in the nonagricultural, private sector and decline in agriculture. If the employment problem were not solved through a decline in rural-urban migration the result might be open unemployment. If,
finally, demand shifted away from (free) agricultural products the result would be price fall for such products with a decline in agricultural real wages and possibly increased emigration.

In addition we have to consider, first, the accumulation of LE-funds by the owners of foreign exchange. These would probably tend to spill over into the markets for land and real estate and drive up prices here.

Secondly, we have also to consider possible effects on emigration and remittances. These cannot be considered exogenous to the Egyptian economy. The institution of own-imports with an implicit or explicit free exchange rate was intended as an incentive to repatriate emigrant earnings but may also have served directly as an incentive to emigrate. We can assume that earnings in the Arab OPEC countries are given in US-$ or riyals independently of the Egyptian (stock) supply of emigrants. A depreciation of the free rate would then imply an increase in the earnings in LE and ceteris paribus this should presumably imply an increased stock of emigrants.

9. Wars and Terms-of-Trade Shocks

Wars are shocking events and since World War II the Middle East may have suffered more from such shocks than any other part of the world. Depending upon how we count, both Egypt and Israel have experienced five wars, four of them against one another. The 1948 and 1956 wars did not have profound effects on the Egyptian economy in terms of resource use and production dislocation although the events leading up to the latter war were instrumental in shifting Egyptian trade and aid toward the Communist countries for a decade and a half. The Yemen war of 1962-67, chronologically continuing into the war with Israel 1967-73, had major effects upon domestic resource allocation and budgetary-monetary policies. The most
important adjustment was the increase in the armed forces with a severe reduction of public investments and growth (politically the cheapest solution) and fiscal-monetary austerity policies. The private, nonagricultural sector suffered a setback through, among other things, a reduction of construction activities with repercussions for agricultural employment. This is probably the root cause of the decline in agricultural wages from 1964 to 1973, construction being a major link between agriculture and the private nonagricultural sector. The end of open belligerency after 1973 did not lead to dismantling of the armed forces which to this day remain at their peak size. Public investment and fiscal-monetary policies were, however, reversed completely after 1973 but that is best dealt with in the context of the terms-of-trade shocks.

Terms-of-trade (net barter) are depicted in Fig. 1. There are considerable difficulties with the measurement of terms-of-trade for Egypt. During some periods the country has been on a multiple exchange rate system. For such periods it is not clear whether terms-of-trade changes (estimated as they are on trade values converted to Egyptian pounds) reflect changes in relative international prices or changes in relative exchange rates for exports and imports. Military equipment, moreover, is not included in the import statistics and has at times been extremely important (1965-72). The notion of terms-of-trade thus becomes rather opaque. With these caveats we notice four instances of strong terms-of-trade changes. They all differ fundamentally and just throwing a terms-of-trade variable into regressions of wages upon other variables (as we have done to see how it worked) does not lead anywhere. We have to specify the nature of the terms-of-trade change in terms of commodities and sectors affected.
(i). The Korean Boom resulted in the largest terms-of-trade change Egypt ever experienced, +65 percent from 1949 to 1951, -45 percent from 1951 to 1953. For a country with commodity import (export) amounting to some 20-25 percent of GNI, this means a terms-of-trade gain and subsequent loss of some 15 percent of GNI. The terms-of-trade change was here almost exclusively due to an increase in the export price of cotton with a subsequent collapse. Cotton being both an important agricultural output and an important input in manufacturing (cotton textiles) we should expect an increase, followed by a decline in real agricultural wages and the opposite for real wages in manufacturing. Labor supply responses should tend to modify these effects on real wages, migration of rural labor to industry and other nonagricultural activities being retarded. Figure 1 conforms to this theoretical prediction.

Egypt followed the British devaluation in 1949 but kept then the official dollar rate unchanged until 1962. Her exchange reserves were largely blocked in London and only released dropwise after negotiations with the British government. Import controls with various special export arrangements prevailed (for details, see Hansen and Nashashibi, 1975, Ch. 2). With the improvement of the terms of trade, the exchange earnings increased and the controls were relaxed correspondingly. Both exchange reserves and money supply thus remained stationary throughout the upswing. With the collapse of the cotton prices in 1952, the exchange reserve was allowed to decline somewhat but money supply remained rather constant and the import controls were again tightened. By and large fiscal-monetary policies were thus neutral through the boom and its collapse with the controls operated countercyclically.
(ii.) During the years of war economy, 1964-71 (73) Egypt apparently experienced a substantial improvement of terms-of-trade. These were years when Egypt was a Soviet client. As such she was offered generous terms for her exports; the Soviet Union, of course, formally paid world market prices but when the Soviet Union picks up more than half the world supply of a particular commodity (extra long staple cotton) and dump some of it in the European markets then the Soviet price tends to be the world market price (and not the other way around). This is also the period when military equipment was a major import, not recorded in the trade statistics. The Soviet price policy on this side is not known. What the client gained on the swings, she may have lost on the roundabouts. Be that as it may, we here meet what has become the typical Egyptian response to external price shocks: the increase in the export price of cotton was not passed on to agriculture or to the textiles industry. Cotton was from 1961 traded exclusively by the government and a variable "tax" stabilized both farm price and industry price in the face of international price fluctuations. The terms of trade improvement thus had little direct impact on either agricultural or manufacturing wages or employment. Its effects came through the budget. Both monetary and fiscal policies were, however, tight during these years and the exchange earnings were absorbed by military imports. The impact on the labor market was, if anything, probably to lower demand for labor. Real wages in agriculture fell, real wages in manufacturing rose, the opposite of what the market forces would have tended to bring about without government intervention. With gross investments cut down to or perhaps even below the level of replacement requirements there was little change in the structure of the economy during these years.
(iii). The first oil price shock in 1973 was accompanied by a large increase in wheat and other cereals prices. Egypt was at that time still a net oil importer and being also a wheat importer her terms of trade deteriorated by some 35 percent. Domestic substitution effects were small because price changes were cushioned by subsidization. Budgetary problems were handled through domestic bank and foreign financing and inflationary pressures began to build up. The main impact, however, came not from the Egyptian terms-of-trade deterioration but from, as it were, the terms-of-trade gains of the Arab OPEC-countries. These gains, the other side of the coin, were partly used for generating a strong demand for foreign workers to Arab-OPEC countries. Emigration was under the Nasser-regime almost banned, exit visas being given only under exceptional circumstances. Sadat made emigration a constitutional right in 1971 and the response of the Egyptian labor market to the demand from the Arab OPEC-countries was strong. During the first few years, 1973-77, foreign demand was (apart from teachers, professionals, and management) mainly for skilled construction workers to Libya and Saudi Arabia. The outflow from the construction industry was replaced domestically by labor from other sectors, among them agriculture, naturally resulting in a serious quality deterioration. A strong domestic construction boom in residential building developed, based on remittances and other foreign capital. Private sector construction wages thus increased enormously with natural consequences for agricultural wages. This is the explanation of the violent increase in agricultural real wages by 78 percent from 1973 to 1977 with only a continued moderate increase by some 10 percent in manufacturing. Agricultural emigration abroad did not develop on a large scale until the end of the seventies. Emigration of management, technicians, teachers, and other specialized labor from the
public sector was substantial. It required leave of absence but such leaves were given generously and shortages of such labor became prevalent in the public sector. The government did not respond generally with wage increases, partly because the public sector continued to be overstaffed with employees of ordinary and low skills. Some upgrading did take place for specialists with good connections but generally the pay-structure in the public sector remained unaffected. Second jobs for public employees (in principle illegal), however, became the rule rather than the exception. This supply of labor (mainly white collar) may have served to keep down wages in the private, nonagricultural sector, retail trade, transportation, and the like.

Considering the simultaneous deterioration of terms of trade, caused by sharp increases in oil and wheat prices, and loss of manpower, the hypothetical effects upon wages in agriculture and industry without government interference are a bit complex. By itself the oil price increase should tend to increase wages in the oil-producing sector. The increase in cereals prices should tend to increase wages in agriculture. For the rest of the economy, however, where oil to varying degrees is an input and both cereals and oil enters the household budget, the tendency should be for both nominal and real wages to fall. Emigration, on the other hand, should tend to drive up wages everywhere, in both nominal and real terms. The net result should be an increase in wages, nominally and in real terms in both the oil industry and agriculture. Employment in the oil industry is, of course, miniscule. For all other activities the net result is uncertain. Actual, annual real wage increases 1973-78, 13.5 percent in agriculture, 2.4 percent in manufacturing, may not have been entirely out of line with hypothetical developments without intervention.
(iv.) The second oil price boost in 1979 found Egypt (since 1976) as a net exporter of oil on a considerable scale and Egypt this time experienced a terms of trade improvement by some 20 percent. Shortly before the oil price boost the official exchange rate was, under pressure from the IMF, depreciated by 38 percent, almost to the level of the free and black market rates that until 1980 remained unaffected by the official depreciation. Continued inflationary financing of the budget with the uncertainties related to the assassination of Sadat caused then a depreciation of the free rate by some 30 percent at unchanged official exchange rate. In 1984, before the oil prices started declining seriously, both official and free exchange rates were thus depreciated by about one third as compared with 1978 the latter continuing to be depreciated by about one third in relation to the former. Cost-of-living increased by 46 percent from 1978 to 1981 while agricultural wages increased by 101 percent and wages in manufacturing by 68 percent.

For the years 1979-81 we are thus faced with three major events, the consequences of which we have to disentangle: The devaluation in early 1979, the new oil price increase with the accelerating world inflation, and the continued, probably increased demand for labor from the Arab OPEC-countries.

The devaluation of 1979 was a much delayed response to the 1973 oil price increase and its consequences. Subsidization entailed large increases in budget expenditures and absorbed practically speaking the whole increase in oil and Suez Canal revenues in the years up to 1979. Strongly increased public investments required outside financing, some of it through the domestic banking system, some of it through foreign loans. From 1979 further subsidization was applied to dampen the effects on domestic
cost-of-living of the devaluation with the accelerating world inflation. Everything considered the cost-of-living increase by 46 percent from 1978 to 1981 was moderate but it was bought at the price of using the increased oil and Suez Canal revenues for covering current budget expenditures. With increasing public investments, financed through borrowing from the domestic banking system and from abroad, inflationary pressures increased and the rate of open inflation continued at a level of 15-20 percent measured by the official cost-of-living index. Meanwhile a large foreign debt of some US$35 billion was accumulated, mainly used for financing investments in the public budget. These relatively large investments were not oriented to the balance of payments and its problems and for that reason Egypt does stand out as a typical case of the so-called Dutch Disease.

The improved terms of trade through the relative increase of oil prices should, of course, without government intervention, lead to further increase in the real wages of labor in the oil industry. For other workers (the overwhelming majority), the consequence should be a decline in real wages. Continued emigration and loss of manpower should, on the other hand, as for the period 1973-78, tend to increase real wages across the board and what the net should have become for workers outside the oil industry is an open question. The actual annual increase in real wages 1978-81, 13.4 percent for agriculture, 4.7 percent for manufacturing appear to be on the high side, at least for manufacturing where political considerations obviously entered the picture.
Concluding Remarks

It is no exaggeration to characterize Egyptian government and public sector responses to external shocks during the last two decades as feeble and unimaginative, for political reasons mainly aiming at sheltering the urban population against possible unpleasant effects and thus following a line of least popular, immediate dissatisfaction at the same time as the private part of the labor market responded with great flexibility within the framework of stifling regulations and controls and a steadily growing public sector. Through a mixture of design and default, Egypt has since the late fifties developed into an etatist, inefficient, full employment economy with almost half the country's paid employees in the public sector, about one-third in agriculture, and the remaining one-fifth in the private, "informal" sector, mostly retail trade, repair and maintenance, small-scale manufacturing, crafts and professional services. Public sector employees have employment security and wages that can best be characterized as a political price, little influenced by labor market forces. In agriculture wages are highly flexible and the situation one of full employment of the available supply of labor with strong, possibly declining seasonal fluctuations. Unionization is widespread but entirely unimportant, tightly controlled as the unions are by the government. Quantitative studies, far from conclusive, indicate that the Phillips-relation does not apply to either agricultural or manufacturing wages, while agricultural wages appear to be well explained by standard marginal productivity theory. Little is known about informal sector wages; wages for casual labor in construction have been highly flexible. Unemployment seems generally, since the sixties at least, to have been very low and of the frictional variety. Guaranteed
employment for graduates since 1964 and for dismissed conscripts since 1973, and demand for labor from Arab-OPEC countries since 1973 have contributed much to create full employment.

Weak, essentially conservative rulers, fearful of riots and other negative popular reactions, dependent upon the loyalty of a huge, well-entrenched bureaucracy, civilian and military, the upper eschelons of which positively benefit from and have a vested interest in the control system, has made a status quo the preferred solution in all cases of external shocks. Windfalls after 1973 in the form of increasing oil, canal, and tourist revenues and emigrant remittances with the international political situation after Camp David gave the government a false sense of financial security that prevailed until the collapse of the oil prices after 1984 and, it could be added, the event of Gramm-Rudman. Hence the persistent and strong resistance against a depreciation of the currency, the continued and increasing subsidization of cost-of-living, the continued exploitation of agriculture in favor of the urban consumers, the continued borrowing in the international credit markets, and the continued neglect of both agriculture and manufacturing industry investments in favor of the service sectors. The political cost of adjusting to external shocks were for many years thought to be higher than the economic costs of not doing so.
Footnotes

1In the statistical and computational work, I benefited greatly from the assistance of Jariya Charoenwattana.

1The word etatism is not commonly used to describe Nasser’s policies. I have taken over the word from the literature on Atatürk’s policy in Turkey, 1923-38. Atatürk used that characterization himself and although their economic ideologies and policies were in many ways very different, the similarities are so striking that I find the use of the word justified also in the case of Nasser and his followers. Indeed, I know of no other way of briefly characterizing economic “Nasserism.” The term Arab socialism, used by Nasser, makes a mockery of socialism. The term state capitalism, often used, is misleading because the public enterprises were never profit maximizers.

2Special cost-of-living indexes exist for urban and rural areas. The index for rural areas is generally considered particularly unreliable as a deflator for agricultural wages. Attempts to improve upon the index are of dubious value. Rather than doctoring upon the official indexes we preferred to apply the national index as published by the IMF (IFC) for years after 1960. For earlier years, see Hansen and Marzouk (1965, Table 5.18).

3Series for average earnings per employee in general government do exist for the periods 1945-56 (Hansen & Mead, 1963), and 1966-79 (Hansen & Radwan, 1982, Table 22). These series do not take into account changes in the composition of the workforce. For the period 1966-79 the increase in average salary per government employee increased by only 71.8 percent against 248.9 percent in manufacturing. The low increases in government is without doubt due to strong shift in composition in favor of lower age
groups and wage grade. Carefully weighted averages are needed before meaningful comparisons of wages in enterprises and government can be made.

4The process of "Egyptianization" is described in detail by Tignor (1974, chapter 6).

5It is not obvious which price index should be used in the Phillips relation. The relationship was postulated ad hoc, from Phillips to Friedman, and is not derived from any general theory. It could be argued that on the demand side product prices, on the supply side cost-of-living, are what matters. In the estimates of Phillips-relations presented here, cost-of-living index has been used.

6I once used a wholesale price subindex for industrial products and materials for a similar purpose but I no longer believe that this was an adequate proxy for manufacturing output prices (Hansen & Marzouk, 1965, Table 1).

7With the t of the constant = 1.25, proportionality between nominal wage and value added is not ruled out, however.

8Experiments were made with alternative definitions of the YR variable, excluding oil and the Suez canal and/or agriculture. The results were about the same. Experiments were also made with using Saudi Arabia exchange reserves of earnings as proxies for emigration, as explanatory variables. Again the results were very similar, obviously because domestic expansion in Egypt was closely related to the oil boom.

9In Egyptian official terminology the "public sector" consists of public enterprises and certain "authorities" (Suez Canal, railways, etc.), not including general government. I use the word as it is conventionally used so as to include all public owned or directly administered activities, that is general government plus public enterprises.
For details on unions and their history, see Ellis Goldberg (1986), and Charles Issawi (1947, pp. 95-98; 1963, pp. 195-96).

These have to be members of the government controlled Federation of Industries through which kind of "collective agreements" are made.

This is not to say, of course, that the government has had no employment policy. We shall discuss that in Section 6.

This is an example of direct government employment of casual labor. It is my impression that wages paid for this operation are relatively low but this apparently is not due to coercion or monopsonistic wage policy. Managers of cooperatives have told me that labor supply for this operation is very abundant because it coincides with the summer school holiday and because farm families are painfully aware of the importance of the operation from their own individual point of view. "Free riders" do not seem to be a problem.

For details see Hansen, 1985.

In problems of labor supply the wage elasticity of participation should, of course, be considered, even when traditions block participation. Here, however, the underenumeration of females prevents meaningful empirical studies.

An alternative series, excluding the Suez Canal and oil is depicted in Fig. 2. It largely coincides with the other series for 1966-80 but is rather different for the years 1960-66.

A relatively large number of unemployed without previous work experience is females. These may be school leavers finding it more difficult than males to find jobs or being up against family objections to their accepting job offers. It may, however, also be a matter of increasing female labor market participation for mature age groups.
Commander and Hadhout (1986, ch. 7) argues, on the basis of a recent sample survey that the informal sector, in particular construction, has not been prominent in absorbing labor from agriculture and that the public sector has been much more conspicuous in this regard. Commander and Hadhout are undoubtedly right in emphasizing the role played here by the public sector. Their sample survey is, however, small and covers only a few villages in the Northeastern Delta. More serious is the fact that the sample is biased by not covering landless labor. It stands to reason that the movement into construction may have been most pronounced for landless labor. Moreover, the great pull from construction took place in the mid-seventies and the sample, taken in 1984, would not pick up labor that moved to construction at that time on a more permanent basis.

This seems also to be the opinion of Commander and Hadhout (1986).

For a modeling of the system in a macro-context, see Adhmed et al., 1985.

Recently the commercial banks appear to have practiced a fractional foreign exchange reserve policy. Foreign exchange accounts in domestic banks should not, of course, be included in supply of domestic money. In a wider money supply concept these may be included. Which concept of money supply is appropriate is a disputed question.

The years of the cotton famine, 1861-65, may have seen even larger terms of trade changes but we do not have accurate, reliable data for these years (Issawi, 1961, Table I; Owen, 1969, Table 33).

In terms of elasticities of supply the response may not have been all that strong, after all. Wage differentials were huge, of the order 1000 percent, perhaps!
References


Goldberg, E., _______________, 1986.


Issawi, C., Egypt: An Economic and Social Analysis, 1947.


Capmas, Labor Force Surveys (in Arabic), Annual.

### Appendix Table A

#### Estimations

<table>
<thead>
<tr>
<th>Estimate Years</th>
<th>Dependent Variable</th>
<th>Constant</th>
<th>DP</th>
<th>U</th>
<th>Y</th>
<th>T</th>
<th>YR</th>
<th>VA</th>
<th>TOT</th>
<th>Z</th>
<th>D</th>
<th>R-square adjusted</th>
<th>F</th>
<th>DW</th>
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<td>1</td>
<td>DA</td>
<td>2.4346</td>
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<td>0.6014</td>
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<td>2</td>
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<td>(0.6333)</td>
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<td>(0.7311)</td>
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<td>0.5009</td>
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<td></td>
<td>(0.2245)</td>
<td></td>
<td>-0.0526</td>
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<td>1.8202</td>
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<td>DA</td>
<td>-0.0026</td>
<td>0.5504</td>
<td>0.2158</td>
<td>0.2201</td>
<td>(1.3021)</td>
<td>(2.2347)</td>
<td>(1.5781)</td>
<td>(1.8829)</td>
<td>0.4995</td>
<td>11.6438</td>
<td>2.3569</td>
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<td>6</td>
<td>1948-81</td>
<td>DA</td>
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<td>0.0514</td>
<td>-0.1663</td>
<td>(0.8104)</td>
<td>(0.6689)</td>
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<td>(-1.3618)</td>
<td>(0.1647)</td>
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<td>2.7567</td>
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<td>8</td>
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<td>0.211</td>
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<td>(1.1764)</td>
<td>(0.2527)</td>
<td>0.4428</td>
<td>6.5634</td>
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<td>11.0019</td>
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<td>-0.1308</td>
<td>(1.0281)</td>
<td>(1.4351)</td>
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<td>2.3221</td>
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<td>1960-81</td>
<td>DA</td>
<td>-4.0485</td>
<td>0.0984</td>
<td>-0.1920</td>
<td>(0.6055)</td>
<td>(0.3258)</td>
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<td>-0.0671</td>
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<td>11</td>
<td>1968-84</td>
<td>DA</td>
<td>-5.2512</td>
<td>1.116</td>
<td>0.1069</td>
<td>(0.6747)</td>
<td>(2.8138)</td>
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<td>6.7794</td>
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<td>DA</td>
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<td>(1.9921)</td>
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<td>WA</td>
<td>-102.466</td>
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<td></td>
<td>(1.2956)</td>
<td>(13.024)</td>
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<td>WA</td>
<td>-146.919</td>
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<td>1946-68</td>
<td>WA</td>
<td>7.2999</td>
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<td>LNA</td>
<td>-8.2754</td>
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Notes:
- All Equations OLS.
- *Cochrane-Orcutt transformation.

1. WA = Nominal wage in agriculture sector.
2. LWA = ln(WA).
3. DA = Annual rate of change of nominal wage in agriculture.
4. DBA = " " " " real " " " " manufacturing.
5. DNM = " " " " nominal " cost of living.
6. DP = " " " " cost of living.
7. U = Rate of unemployment.
8. Y = Real national income per capita of total population.
9. YR = The deviations of real national income per capita from the trend of this period.
10. D = Dummy variable accounted for the failure of the cotton crop in 1951.
11. VA = Nominal Value added.
12. Z = Total output value index.
13. T = Time Trend.
14. TO = Terms of trade, 1955 = 100.
# Appendix Table B

## Estimation of Manufacturing Wages

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Years</th>
<th>Dep. Var.</th>
<th>Constant</th>
<th>PRODPM</th>
<th>PRODPH</th>
<th>COL</th>
<th>Adjusted R-square</th>
<th>F</th>
<th>D.W.</th>
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<td>18</td>
<td>1953-70</td>
<td>REALWM</td>
<td>86.1167 (3,4477)</td>
<td>0.0435 (0.2371)</td>
<td></td>
<td></td>
<td>-0.0588</td>
<td>0.0562</td>
<td>0.2166</td>
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<tr>
<td>19</td>
<td>1953-70</td>
<td>REALWM</td>
<td>87.1906 (4.4954)</td>
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<td>1.7626 (0.2507)</td>
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<td>0.0583</td>
<td>-0.0629</td>
</tr>
<tr>
<td>20</td>
<td>1953-70</td>
<td>WM</td>
<td>-86.8755 (-5.3128)</td>
<td>0.1101 (1.2778)</td>
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<td>21</td>
<td>1953-70</td>
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<td>-91.291 (-6.5185)</td>
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<td>6.2169 (1.9708)</td>
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<tr>
<td>22</td>
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<td>REALWM</td>
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<td>REALWM</td>
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<td>1962-70</td>
<td>WM</td>
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<td>1.3888 (4.1533)</td>
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<td></td>
<td>11,1105 (0.7219)</td>
<td>1.8027 (3.9301)</td>
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<td>0.901</td>
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<td>56.9086 (9.7021)</td>
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<td>0.6779</td>
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<td>27</td>
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<td>61,2314 (10.3484)</td>
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<td>0.5849</td>
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<td>WN</td>
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<td>29</td>
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<td>-0.2577 (-0.6012)</td>
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<td>0.8519</td>
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